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*Case Report*

# HIV/AIDS in Indonesia: A Case-Based Public Health Report on Epidemiological Burden, Risk Factors, Diagnosis, and Antiretroviral Management

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**Abstract:**

Human immunodeficiency virus infection and acquired immunodeficiency syndrome remain major public health concerns in Indonesia, particularly among productive-age adults and key populations. Despite the availability of diagnostic testing and antiretroviral therapy, gaps persist in case detection, treatment coverage, viral suppression, and stigma reduction. This report presents Indonesia as a public health case context rather than an individual patient case, because the source document contains population-level epidemiological and clinical information. The case highlights an estimated national burden of people living with HIV, geographic concentration in several high-burden provinces, and elevated transmission among men who have sex with men, sex workers, transgender women, and people who inject drugs. The clinical course is characterized by progressive CD4+ T-cell depletion, susceptibility to opportunistic infections, and possible progression to acquired immunodeficiency syndrome when untreated. Diagnosis relies on serial serological testing and virological assays in selected groups, while management includes counseling, linkage to care, tuberculosis screening, and lifelong antiretroviral therapy. Strengthening early testing, rapid treatment initiation, adherence support, viral-load monitoring, and stigma-free services is essential to improve outcomes and reduce HIV transmission in Indonesia.

**Keywords:** HIV; AIDS; Indonesia; Epidemiology; Antiretroviral therapy.

## 1. Introduction

Human immunodeficiency virus (HIV) is a retrovirus that attacks immune cells, particularly CD4+ T lymphocytes, and gradually weakens host immunity (1). If untreated, HIV infection may progress to acquired immunodeficiency syndrome (AIDS), a condition marked by severe immunosuppression, opportunistic infections, malignancy, wasting, and neurological complications (2). Although HIV is a lifelong infection, sustained antiretroviral therapy (ART) can suppress viral replication, restore immune function, reduce morbidity and mortality, and prevent onward transmission (3),(4).

Indonesia continues to face a dynamic HIV epidemic. National estimates reported in the source document indicate approximately 564,000 people living with HIV, with persistent gaps in diagnosis, ART coverage, and viral suppression (5). The epidemic is not evenly distributed across regions; higher numbers of cases are reported in provinces such as East Java, DKI Jakarta, Papua, and West Java. Key populations, including men who have sex with men (MSM), sex workers, transgender women, and people who inject drugs, have substantially higher HIV prevalence than the general population (6),(7),(8).

A case-based public health approach is useful when the available source emphasizes the epidemiological pattern, risk factors, clinical pathway, and health-system response rather than a single individual patient (9). This report aims to restructure the provided Indonesian HIV/AIDS report into an international-style case report template, focusing on epidemiological burden, clinical relevance, diagnostic strategy, ART management, and implications for public health practice.

## 2. Case Presentation

### Patient description / population description

No individual patient record was presented in the source document. Therefore, this manuscript describes Indonesia as the public health case context and focuses on people living with HIV, especially productive-age adults and key populations (6). The affected population includes individuals exposed through unsafe sexual contact, needle-sharing among people who inject drugs, and other blood or perinatal exposures (7).

### Case history

The source report describes HIV/AIDS as an increasing public health issue in Indonesia. New HIV cases have been reported to increase annually, while AIDS cases remain high among individuals diagnosed late (10). The age group 20-39 years contributes substantially to the burden, with a predominance among men. The report also notes increasing transmission associated with MSM, while heterosexual transmission, sex work, injecting drug use, transfusion without adequate screening, and non-sterile skin procedures remain relevant risk factors (11).

### Results of physical examination

Because the source is population-based, formal findings from an individual physical examination are not available (12). Clinically, suspected HIV infection may be associated with fever, chronic diarrhea, weight loss greater than 10%, generalized lymphadenopathy, oral candidiasis, recurrent herpes zoster, chronic cough, tuberculosis, pneumonia, and neurological manifestations such as persistent headache, seizures, or cognitive decline (13),(14).

### Pathological test results and other investigations

HIV diagnosis is established using serological or virological methods, and acute HIV infection screening has been incorporated into routine services for key populations in Indonesia (15). Serological testing may include facility-based rapid testing and community-based oral HIV self-testing approaches, particularly for groups with limited access to conventional testing services (16),(17). Risk-score approaches for targeted acute HIV testing among men who have sex with men may support earlier identification of infection in high-risk settings (18).

### Treatment plan

The proposed management strategy includes post-diagnosis counseling, linkage to comprehensive HIV services, partner and child testing when appropriate, assessment of clinical stage, tuberculosis screening, baseline laboratory evaluation, and rapid ART initiation (19). ART should be offered to all people living with HIV, and simplified immediate ART initiation has been evaluated in Indonesia to shorten the time from diagnosis to treatment (20),(21). Rapid ART initiation is clinically important because it has been associated with reduced mortality among people living with HIV in Indonesia (22).

### Expected outcomes

The expected outcomes are early diagnosis, prompt ART initiation, durable viral suppression, reduced opportunistic infections, improved survival and quality of life, prevention of sexual and vertical transmission, and reduced stigma through patient-centered care (20). Treatment success depends on adherence support, patient education, and the management of psychological, social, and service-delivery barriers (23),(24). Viral-load monitoring is also necessary because unsuppressed viral load remains an important indicator of treatment failure and ongoing transmission risk (25).

### Actual outcomes

The source document reports major service-delivery gaps, including incomplete diagnosis, incomplete ART coverage, and incomplete viral suppression among people living with HIV (25). These gaps may be worsened by stigma, health-service bottlenecks, limited access in remote districts, and difficulties in maintaining long-term retention in care (26),(27). Broader testing coverage, stronger adherence support, community engagement, and integrated monitoring of the HIV care continuum are therefore required (28).

**Table 1.** Summary of the HIV/AIDS public health case indicators described in the source report

| Domain | Key finding | Clinical or public health implication |
|---|---|---|
| Estimated burden | Approximately 564,000 people living with HIV were described in the source report. | Large undiagnosed or undertreated population requires expanded testing and linkage to care. |
| Care continuum | Only a proportion knew their HIV status, received ART, and achieved viral suppression. | Gaps across diagnosis, treatment, and monitoring can sustain transmission. |
| Geographic concentration | Higher case burden was described in East Java, DKI Jakarta, Papua, and West Java. | Regional prioritization is needed for targeted prevention and service delivery. |
| Key populations | MSM, sex workers, transgender women, and people who inject drugs had higher prevalence than the general population. | Stigma-free, targeted, and evidence-based services are essential. |
| Clinical progression | Untreated HIV may lead to CD4+ T-cell depletion, opportunistic infections, and AIDS. | Early ART and opportunistic infection screening are central to clinical management. |

## 3. Discussion

This case-based report demonstrates that HIV/AIDS in Indonesia is not only a clinical condition but also a health-system and social challenge. The biological mechanism of disease progression is well established: HIV binds to CD4 receptors, enters susceptible immune cells, integrates into the host genome, and uses reverse transcriptase, integrase, and protease to replicate. Progressive destruction of CD4+ T cells weakens cellular immunity and increases susceptibility to tuberculosis, candidiasis, recurrent bacterial infections, herpes zoster, and other opportunistic diseases.

The epidemiological profile presented in the source report is consistent with the broader understanding that HIV is concentrated in key populations while still affecting the general population. Unsafe sexual contact, especially condomless sex with high-risk partners, needle-sharing among people who inject drugs, prior sexually transmitted infections, unscreened blood exposure, and non-sterile procedures are important risk factors. The public health relevance is amplified because a large proportion of cases occur in productive-age adults, creating social, economic, and family-level consequences.

Clinical suspicion must remain high in patients with prolonged fever, chronic diarrhea, unexplained weight loss, persistent lymphadenopathy, oral candidiasis, chronic cough, tuberculosis, recurrent pneumonia, or neurological symptoms. However, symptom-based recognition is insufficient because many individuals remain asymptomatic during the latent phase. This reinforces the importance of routine, voluntary, confidential, and stigma-free HIV testing, especially among populations with higher exposure risk.

The diagnostic approach described in the source report reflects a tiered strategy. Serological testing using highly sensitive and specific reagents is suitable for most adults and adolescents, while virological testing is required in infants and selected complex cases. The window period remains clinically important because antibody testing may be negative despite early infection. Counseling before and after testing, partner notification where appropriate, and rapid linkage to treatment are necessary to transform diagnosis into clinical benefit.

ART is the cornerstone of HIV management. Early initiation can reduce viral replication, improve immune recovery, and prevent transmission. Nevertheless, treatment success depends on uninterrupted access to medication, adherence counseling, monitoring for toxicity, and evaluation of treatment response (23),(24),(25). Potential adverse effects described in the source include renal or hepatic dysfunction with tenofovir, anemia and neutropenia with zidovudine, neuropsychiatric effects with efavirenz, and hepatotoxicity or severe cutaneous reactions with nevirapine. These risks highlight the need for individualized monitoring and patient education.

The main challenge identified in this public health case is the gap between estimated HIV burden and effective viral suppression. This gap may be influenced by late diagnosis, stigma, fear of disclosure, limited access to

services, inadequate follow-up, and adherence barriers. Strengthening community-based testing, integrating HIV services with tuberculosis and maternal-child health programs, improving confidentiality, and expanding viral-load monitoring can help move the care continuum toward better outcomes.

This report supports current understanding that HIV control requires a combined clinical and public health response. A patient-centered strategy should include prevention education, condom promotion, pre-exposure prophylaxis for eligible high-risk individuals, post-exposure prophylaxis when indicated, harm-reduction services, early ART, monitoring of treatment outcomes, and sustained stigma reduction (29),(30),(31). These interventions are particularly relevant in settings where the epidemic is geographically clustered and concentrated in key populations (32).

## 4. Conclusion

HIV/AIDS remains a significant public health burden in Indonesia, especially among productive-age adults and key populations. The case-based public health perspective shows that the central issue is not limited to viral infection itself, but includes delayed diagnosis, incomplete linkage to ART, insufficient viral suppression, and persistent stigma. Early testing, rapid ART initiation, monitoring for treatment response and adverse effects, tuberculosis and hepatitis screening, and stigma-free community engagement are essential to reduce morbidity, mortality, and transmission. Future practice should prioritize integrated services and targeted interventions for populations and regions with the highest burden.

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