

Preventable Pediatric HIV Outbreaks in Pakistan: Policy Failures in Infection Control and Emerging Urban Transmission Risks

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Abstract:

Childhood human Immunodeficiency virus (HIV) infection in Pakistan represents a preventable public health failure that reflects systemic weaknesses in healthcare delivery, infection control, and governance. This study critically examines the recent pediatric HIV outbreak in Taunsa, Punjab, alongside rising HIV cases in Islamabad, to provide a unified analysis of Pakistan's evolving HIV landscape. The Taunsa outbreak, affecting over 300 children with no familial history of HIV, strongly implicates iatrogenic transmission linked to unsafe injection practices, reuse of contaminated medical equipment, and inadequate sterilization protocols within healthcare settings. In contrast, the increasing number of HIV cases in Islamabad highlights behavior-driven transmission associated with intravenous drug use and unsafe sexual practices. By integrating these distinct epidemiological patterns, this article demonstrates that both clinical and community-level transmission pathways stem from shared structural deficiencies, including weak regulatory oversight, fragmented healthcare systems, and poor implementation of existing policies. The study further underscores the ethical implications of pediatric HIV infections as violations of patient safety and public trust. Persistent gaps in surveillance, infection control enforcement, and harm reduction strategies continue to fuel preventable infections. Addressing these challenges requires a comprehensive, system-wide approach that prioritizes strict infection control measures, strengthened health governance, integrated surveillance systems, and targeted prevention programs. The findings emphasize the urgent need for coordinated policy action to prevent future outbreaks, protect vulnerable populations, and restore confidence in Pakistan's healthcare system.

Keywords: HIV, AIDS, Pediatric HIV, Iatrogenic Transmission, Infection Control, Pakistan's Health System Governance

Introduction:

Childhood human Immunodeficiency virus (HIV) infection stands as a deeply preventable tragedy, often serving as a stark indicator of failures within public health systems (1). Unlike HIV transmission in adults, which frequently involves complex behavioral and social factors, pediatric cases, especially in regions not typically endemic for the virus, are primarily a consequence of avoidable oversights in healthcare delivery (2). Each instance of a child contracting HIV through unsafe medical practices represents not just a personal catastrophe, but a profound erosion of the fundamental trust between healthcare providers and the communities they are meant to serve (3,4). In Pakistan, this troubling pattern of preventable harm continues to unfold, disproportionately affecting its most vulnerable citizens (5).

Over the last decade, Pakistan has experienced multiple HIV outbreaks among children, consistently traced back to systemic deficiencies in



infection control (1). These outbreaks are not isolated incidents; rather, they expose deep-seated weaknesses in the nation's healthcare infrastructure, regulatory oversight, and overall public health governance (5). A prominent example is the outbreak in Larkana, Sindh, where hundreds of children were diagnosed with HIV, with investigations conclusively pointing to unsafe injection practices and the reuse of contaminated medical equipment as primary causes (1). Despite national and international attention, and subsequent policy discussions aimed at reform, similar patterns have tragically resurfaced in other areas, suggesting that the critical lessons from past crises have yet to be effectively translated into sustainable, system-wide improvements (2).

The recent pediatric HIV outbreak in Taunsa, Punjab, painfully reiterates this cycle of failure. In this particular event, a significant number of children, many under the age of ten and without any familial history of HIV, tested positive within a compressed timeframe. Epidemiological investigations have established clear links to prior healthcare exposures, specifically services received at a local Tehsil Headquarters (THQ) Hospital. This strongly implicates iatrogenic transmission, likely stemming from unsafe injection practices, inadequate sterilization of medical instruments, or broader lapses in established infection control protocols (4). Such scenarios are particularly alarming because they involve healthcare settings, which are inherently expected to provide protection and care, yet instead become sources of significant harm (1,5).

The Taunsa outbreak highlights a persistent and critical issue: the continuation of unsafe medical practices despite widespread knowledge, existing guidelines, and the painful lessons of previous outbreaks (4). The pervasive reliance on injections as a preferred method of treatment, often influenced by both ingrained habits of healthcare providers and patient expectations of efficacy, creates an environment where the risk of bloodborne infections is significantly amplified (6). In settings characterized by limited oversight and constrained resources, this risk is further exacerbated by the reuse of syringes, improper disposal of medical waste, and insufficient training of healthcare personnel. Collectively, these factors perpetuate a cycle of preventable transmission that disproportionately impacts children (1,4).

While the Taunsa outbreak focuses on failures within clinical environments, emerging data from urban centers like Islamabad indicate that the HIV burden in Pakistan is evolving along parallel trajectories. Surveillance reports from Islamabad Capital Territory show that between January 2025 and March 2026, a total of 618 new HIV cases were recorded, with 120 of these identified in the first three months of 2026 alone, indicating a steady rate of new infection detection. The demographic distribution of these cases, encompassing adult males, women, transgender individuals, and a smaller proportion of children, reflects a broader and more complex transmission landscape. Health experts attribute these urban cases primarily to high-risk behaviors, including intravenous drug use, especially crystal methamphetamine, and unsafe sexual practices (7). These findings underscore significant deficiencies in current preventive strategies, harm reduction programs, and public awareness campaigns. While government authorities suggest that increased detection might be partly due to improved screening and surveillance, this does not diminish the urgent need to address the underlying risk factors that continue to drive new infections (6,8).

The simultaneous occurrence of iatrogenic transmission among children in rural or semi-urban healthcare settings and behavior-driven transmission in urban populations exposes a fragmented and inconsistent public health response (4). On one hand, failures in infection control directly expose patients, particularly children, to avoidable risks within the very healthcare system designed to protect them (1). On the other hand, insufficient attention to behavioral prevention, community education, and harm reduction allows the ongoing spread of HIV within the general population (8). This dual burden highlights the absence of a unified, integrated strategy for HIV prevention and control across diverse contexts (9).

Furthermore, these developments raise critical questions regarding the effectiveness of Pakistan's existing health governance structures. The recurrence of pediatric outbreaks suggests that where infection control policies exist, their implementation and enforcement are severely lacking (4). Similarly, the increasing number of cases in urban areas points to critical gaps in surveillance systems, data utilization, and the deployment of targeted intervention programs. Together, these issues reflect a broader challenge: the persistent inability of the health system to consistently and sustainably translate policy into effective practice (9).

The implications of these systemic failures extend far beyond immediate health outcomes. Pediatric HIV infections acquired through unsafe medical practices represent a profound violation of fundamental ethical principles, including the right to safe and quality healthcare. They also contribute significantly to long-term social and economic burdens, as affected children require lifelong treatment and support (1,2). Concurrently, the spread of HIV in urban populations places additional strain on already limited healthcare resources and complicates national efforts to control the epidemic. In this crucial context, these recent outbreaks and emerging trends should not be viewed as isolated incidents but rather as urgent warning signals of deeper, pervasive systemic weaknesses (5). They necessitate a comprehensive reassessment of infection control practices, surveillance mechanisms, and health governance frameworks across Pakistan. Without decisive, coordinated action and sustained political commitment, the nation risks perpetuating a cycle of preventable infections, thereby eroding both public health and public trust (9).



Rationale and Novelty

This article redefines our understanding of Pakistan's ongoing HIV challenges, moving beyond isolated incidents to reveal them as interconnected symptoms of systemic health system vulnerabilities. While previous research has often examined pediatric HIV outbreaks or rising urban HIV trends in isolation, this study uniquely integrates both, iatrogenic transmission among children in Taunsa and emerging urban transmission patterns in Islamabad, within a unified policy and governance framework (4). This approach transcends purely descriptive epidemiology, offering a comprehensive, systems-level analysis that illuminates how diverse transmission pathways stem from common structural deficiencies.

The distinctive contribution of this work lies in its dual analytical focus. Firstly, it critically views pediatric HIV infections not merely as unfortunate occurrences, but as profound sentinel events indicative of healthcare system failure. These cases, being almost entirely preventable, underscore significant breakdowns in infection control standards, clinical accountability, and regulatory oversight. Secondly, the article juxtaposes these pediatric cases with urban HIV data, where transmission is predominantly driven by behavioral and social determinants, including intravenous drug use (particularly crystal methamphetamine) and unsafe sexual practices. By integrating these two distinct yet related epidemiological patterns, this study provides a more holistic understanding of Pakistan's complex HIV landscape, demonstrating that both clinical and community-level risks are manifestations of fragmented and inadequate public health responses.

A further key innovation of this article is its explicit emphasis on policy failure, rather than exclusively focusing on clinical or behavioral risk factors. While prior studies have documented issues such as unsafe injection practices, pervasive stigma, and gaps in awareness, fewer have systematically linked these challenges directly to weaknesses in governance, enforcement mechanisms, and fundamental health system design. This article bridges that critical gap by identifying how deficiencies in regulation, surveillance, and service delivery collectively contribute to preventable HIV transmission. In doing so, it strategically shifts the discourse from individual-level responsibility to institutional accountability, a crucial pivot for fostering meaningful and sustainable reform within the health sector.

The rationale for this study is rooted in the urgent necessity to address the recurring and preventable nature of HIV outbreaks across Pakistan. Despite previous significant incidents, such as those in Larkana, the persistence of similar events in Taunsa indicates that past corrective measures have either been insufficient or inadequately implemented. Concurrently, the increasing number of reported HIV cases in Islamabad suggests that the epidemic is evolving and expanding into new demographic and geographic contexts, presenting novel challenges (1,4). This convergence of rural, healthcare-associated transmission and urban, behavior-driven transmission clearly highlights the inadequacy of current strategies, which often operate in silos and fail to address the broader, interconnected determinants of disease spread.

Moreover, this study is significantly motivated by the critical gap between policy formulation and its practical implementation. Although Pakistan has developed national guidelines for infection control and HIV prevention, the recurrent nature of outbreaks persistently highlights a profound disconnect between stated policy and actual practice. Weak enforcement mechanisms, limited resource allocation, and a prevailing lack of accountability have consistently hindered the effective translation of these policies into tangible, real-world outcomes. By rigorously examining these persistent gaps, this article provides a timely and evidence-informed foundation for strengthening health system governance and improving policy effectiveness.

Ultimately, this work is driven by a broader public health imperative: the moral and ethical obligation to protect vulnerable populations, especially children, from preventable harm. Pediatric HIV infections acquired through unsafe medical practices are not only medically avoidable but are ethically unacceptable, representing a severe breach of patient safety and trust. Addressing this complex issue demands more than isolated clinical interventions; it necessitates coordinated policy action, comprehensive institutional reform, and sustained political commitment across all levels of government and healthcare provision. By synthesizing recent outbreak data with a robust policy-focused analysis, this article aims to inform decision-makers, guide future research, and contribute to the development of a more resilient, equitable, and accountable health system for all of Pakistan's citizens.

Case / Outbreak

1. Pediatric Outbreak in Taunsa (Core Case)

The recent pediatric HIV outbreak in Taunsa, Punjab, serves as a profoundly alarming public health event in Pakistan, tragically impacting numerous vulnerable children. Reports indicate that over 331 children tested positive for HIV within a relatively brief period, with initial clusters identifying more than 150 cases. The majority of these affected children are between 6 months and 10 years of age, a demographic typically not exposed to conventional behavioral risk factors for HIV transmission. Crucially, the absence of parental HIV history in most cases



strongly suggests that transmission occurred through non-vertical, healthcare-associated routes, rather than from parent to child (4). A striking epidemiological pattern observed in this outbreak is the consistent link to healthcare exposure, particularly services received at a local Tehsil Headquarters (THQ) Hospital. Many of the affected children had a history of receiving injections, routine treatments, or immunization services at this facility. This clustering of cases strongly suggests iatrogenic transmission, where the infection is acquired as a direct result of medical procedures rather than through natural community spread. The suspected causes of transmission primarily revolve around unsafe injection practices and inadequate sterilization protocols. In healthcare settings characterized by resource constraints and weak regulatory oversight, practices such as the reuse of syringes, improper disposal of medical waste, and insufficient sterilization of instruments are well-documented risks. Such lapses significantly increase the likelihood of transmitting bloodborne infections, including HIV, hepatitis B, and hepatitis C. The pervasive overuse of injections as a preferred mode of treatment further exacerbates this risk, particularly in environments where infection control measures are inconsistently applied or poorly enforced (4).

Crucially, the Taunsa outbreak is not an isolated incident but rather a troubling manifestation of a recurring pattern within Pakistan's public health landscape. A similar, widely reported outbreak occurred in Larkana, Sindh, where hundreds of children were diagnosed with HIV, and investigations unequivocally confirmed unsafe medical practices as the primary cause. Despite both national and international attention and subsequent policy discussions aimed at reform following the Larkana crisis, the re-emergence of comparable outbreaks in Taunsa underscores a persistent failure to implement and sustain effective infection control measures across the healthcare system. This repetition highlights systemic weaknesses in healthcare governance, monitoring, and accountability that continue to jeopardize patient safety (1).

2. Emerging HIV Trends in Islamabad (Supporting Evidence)

In contrast to the pediatric outbreak in Taunsa, recent HIV data from the Islamabad Capital Territory reveal a different yet equally concerning transmission dynamic. Between January 2025 and March 2026, a total of 618 new HIV cases were reported in the region, with 120 of these cases identified in the first three months of 2026 alone, indicating a steady rate of new infection detection over time. The demographic profile of affected individuals in Islamabad indicates a broader and more diverse population at risk. The majority of cases involve adult males (approximately 64%), alongside adult females, transgender individuals, and a smaller proportion of children. This distribution highlights the expanding reach of HIV beyond traditionally recognized high-risk groups and underscores the increasing complexity of transmission pathways in urban settings (7).

Health experts have primarily linked the spread of HIV in Islamabad to behavioral risk factors, including the increasing use of injectable and non-injectable drugs, particularly crystal methamphetamine, as well as unsafe sexual practices. These findings point toward significant deficiencies in current preventive health strategies, including limited access to harm reduction services, inadequate sexual health education, and insufficient community-level interventions targeting high-risk populations (7).

However, the interpretation of these data is subject to ongoing discussion. Government authorities have emphasized that the reported increase in cases may not necessarily indicate a sudden surge in transmission rates but rather reflect enhanced screening, improved surveillance, and expanded testing efforts. While improved detection is a positive development, allowing for earlier intervention and care, it does not diminish the critical importance of addressing the underlying behavioral and structural drivers of HIV transmission that continue to fuel new infections (7).

System Failures

1. Infection Control Gaps

The pediatric HIV outbreak in Taunsa brings into sharp focus the critical deficiencies in infection control practices that tragically persist within some healthcare settings (4). At its core, this crisis reveals a profound absence of consistent sterilization protocols, particularly in facilities that are often overburdened and resource-limited. It is heartbreaking to consider that fundamental standard precautions, such as the crucial use of sterile, single-use equipment and meticulous disinfection procedures, are either inadequately implemented or, in some cases, entirely neglected. In such environments, the very interventions designed to bring healing can, devastatingly, become vectors for serious, life-altering infections. One of the most concerning practices that feeds into this systemic failure is the recurring reuse of syringes and needles. Despite clear global guidelines unequivocally advocating for single-use injection equipment to safeguard patients, economic pressures, insufficient oversight, and deeply ingrained clinical habits often lead to the repeated use of disposable devices. This practice dramatically escalates the risk of transmitting blood-borne pathogens, including HIV, a risk that is acutely felt by pediatric populations who frequently receive injections for even minor ailments.



Compounding these issues is the troubling reality of weak monitoring and surveillance systems within healthcare facilities. Infection control measures are rarely subjected to the rigorous, regular audits they require, and there is often no clear, structured mechanism for reporting or thoroughly investigating breaches. As a result, unsafe practices can tragically persist unchecked for extended periods. Furthermore, a pervasive lack of accountability at the hospital level allows such critical lapses to go unaddressed. In many instances, the lines of responsibility are blurred, and healthcare providers are not consistently held accountable for deviations from established protocols. This absence of accountability fosters an environment where the sacred trust placed in healthcare is compromised, and patient safety is jeopardized.

2. Unsafe Medical Practices

Beyond these formal infection control failures, broader patterns of unsafe medical practice significantly contribute to the risk of HIV transmission, reflecting a profound ethical challenge. One of the most pervasive issues in Pakistan's healthcare system is the disproportionate and often unnecessary overuse of injections. Injections are frequently perceived by both patients and providers as inherently more effective than oral medications, leading to their frequent and often unwarranted administration. This cultural and clinical preference creates far too many opportunities for unsafe practices to occur, thereby tragically amplifying the risk of transmission.

The proliferation of informal and often unregulated private clinics further exacerbates this profound problem. In numerous areas, particularly in rural and semi-urban settings, a substantial portion of healthcare is delivered by practitioners operating outside formal regulatory frameworks. These facilities frequently lack even the most basic infection control infrastructure and often fail to adhere to standardized clinical guidelines. Patients, often driven by the immediate need for accessible and affordable care, frequently turn to such providers, often unaware of the inherent, elevated risks.

Additionally, the involvement of untrained or inadequately trained healthcare providers poses a significant and deeply concerning challenge. Many individuals delivering medical care lack formal education in essential infection control or safe clinical practices. Without proper training, these providers may unknowingly engage in behaviors that increase the risk of disease transmission, such as the improper handling of delicate medical instruments or a failure to follow crucial aseptic techniques. This critical gap in professional competence reflects broader, underlying deficiencies in workforce development and capacity building within the health sector, impacting the lives of countless patients.

3. Weak Regulation and Governance

At the systemic level, these failures are deeply rooted in weak regulation and ineffective governance structures. While policies and guidelines for infection control and safe medical practice certainly exist, their implementation remains profoundly inconsistent due to poor enforcement mechanisms. Regulatory bodies often lack the necessary resources, the requisite authority, or the essential coordination required to ensure consistent compliance across both the public and private healthcare sectors.

A significant and alarming issue is the absence of robust licensing and oversight systems. Far too many healthcare providers and facilities operate without proper registration or accreditation, allowing substandard and unsafe practices to continue unchecked. Even in instances where licensing systems are ostensibly in place, enforcement is frequently selective or irregular, critically undermining their intended effectiveness. This gaping regulatory void creates an environment in which unsafe practices can proliferate without adequate consequence, putting vulnerable lives at risk.

Furthermore, there is a notable and troubling lack of routine infection control audits. Regular inspections and thorough evaluations are absolutely essential for maintaining standards and for promptly identifying areas needing improvement; however, such vital mechanisms are either severely underdeveloped or poorly implemented. Without systematic and regular audits, health authorities are gravely hampered in their ability to detect and address risks in a timely manner, leading to prolonged patient exposure to unsafe conditions.

The broader fragmentation of the healthcare system in Pakistan significantly contributes to these pervasive challenges. The coexistence of public, private, and informal sectors, often operating independently and with alarmingly minimal coordination, results in an uneven quality of care and inconsistent adherence to critical standards. This fragmentation gravely complicates efforts to implement unified policies, effectively monitor compliance, and ensure unwavering accountability across the entire healthcare system, ultimately failing those it is meant to serve.

Public Health and Medical Ethics

The recent pediatric HIV outbreaks in Pakistan carry profound public health and ethical consequences, extending far beyond immediate clinical



outcomes. At the most fundamental level, these incidents represent a violation of the child's right to safe and quality healthcare. Children are entirely dependent on healthcare systems for protection and treatment, and exposure to life-threatening infections through medical care constitutes a serious breach of this responsibility. Such events also contradict core patient safety principles, which emphasize "do no harm" as a foundational obligation of healthcare providers (10). When healthcare settings become sources of infection rather than healing, the ethical integrity of the system is fundamentally compromised.

In addition to these violations, HIV continues to be heavily stigmatized within many communities. Children diagnosed with HIV, particularly in settings where transmission is misunderstood, often face social exclusion and discrimination. Families may experience isolation, and affected children can be denied access to education due to fear and misinformation surrounding the disease. Instances of school denial and community rejection not only infringe upon basic human rights but also contribute to long-term psychological distress, reduced social integration, and diminished quality of life (11,12).

Another critical consequence of such outbreaks is the erosion of public trust in the healthcare system. Trust is a cornerstone of effective healthcare delivery; without it, individuals may become reluctant to seek medical care, adhere to treatment, or participate in public health initiatives. When communities perceive healthcare facilities as unsafe, particularly following highly publicized outbreaks, this mistrust can spread rapidly, undermining immunization programs, routine medical care, and disease prevention efforts.

The long-term burden of pediatric HIV infection is also substantial. Children who acquire HIV require lifelong antiretroviral therapy (ART), regular monitoring, and continuous medical support. This places a significant strain on both families and the healthcare system. Beyond the clinical dimension, there are considerable economic and social impacts, including the cost of long-term treatment, loss of productivity, and the need for ongoing psychosocial support. Families may face financial hardship due to medical expenses and reduced earning capacity, while the broader health system must allocate sustained resources to manage a preventable condition.

These public health and ethical implications highlight the far-reaching consequences of systemic failures in infection control and governance. They underscore the urgent need for reforms that prioritize patient safety, protect vulnerable populations, and restore confidence in healthcare institutions.

Critical Evaluation of Policy Gaps

The persistent recurrence of pediatric HIV outbreaks, tragically alongside a discernible rise in urban HIV cases, unequivocally highlights critical deficiencies within Pakistan's existing health policy framework. While national guidelines and strategic plans for HIV prevention and control certainly exist, there remains a significant and concerning gap between the articulation of these policies and their effective, widespread implementation. These systemic shortcomings are evident across multiple crucial domains, including infection control, disease surveillance, and comprehensive prevention strategies.

One of the most significant and heartbreaking gaps is the conspicuous absence of a robust, consistently enforced national infection control system. Although infection prevention guidelines may be well-documented on paper, there is a profound lack of a uniformly implemented mechanism to ensure mandatory compliance across all healthcare facilities. This critical lack of enforcement regrettably allows unsafe practices, such as improper sterilization techniques and the dangerous reuse of medical equipment, to persist, particularly in under-resourced and often overburdened settings. Without a centralized system for diligent monitoring and stringent accountability, infection control remains dangerously inconsistent and largely dependent on the varying capacities and commitment of individual institutions.

Another major limitation is the concerning lack of routine pediatric HIV screening, especially in regions identified as high-risk or prone to outbreaks. Early detection is absolutely crucial for timely intervention, providing essential care, and preventing further transmission of the virus within communities. However, comprehensive screening programs for children are not yet systematically integrated into primary healthcare services across the nation. As a deeply unfortunate consequence, many pediatric HIV cases remain undiagnosed until they reach advanced stages, leading to delayed treatment and significantly increasing the risk of continued spread within vulnerable communities.

Furthermore, Pakistan's response to HIV regrettably lacks comprehensive harm reduction programs specifically targeting high-risk populations, most notably individuals who use injectable drugs. The rising number of cases in urban centers, such as Islamabad, which are explicitly linked to drug use (including crystal methamphetamine) and unsafe sexual practices, starkly underscores the absence of structured interventions. These interventions should include essential services such as needle exchange programs, accessible addiction treatment services, and targeted awareness campaigns tailored to these specific populations. This glaring gap reflects a broader neglect of critical behavioral and social determinants of



health within the national HIV strategies.

Compounding these issues are inherently weak surveillance systems, which severely limit the ability to detect and respond to HIV outbreaks effectively and promptly. Delays in case identification are distressingly common, often attributable to fragmented reporting mechanisms and insufficient integration of data across various healthcare sectors. Moreover, underreporting remains a persistent and significant challenge, driven by pervasive stigma, limited access to testing facilities, and inconsistent data collection practices. These profound limitations critically hinder accurate assessment of the true HIV burden and delay timely public health interventions, exacerbating the crisis.

A further and particularly concerning issue is the evident disconnect between urban and rural health policy responses. The devastating pediatric outbreak in Taunsa widely illustrates a profound failure at the clinical level, where inadequate infection control practices directly led to iatrogenic transmission among children. In stark contrast, the rising HIV cases in Islamabad predominantly highlight critical deficiencies in behavioral prevention strategies and community-level interventions. This significant divergence suggests that current policies are not sufficiently adaptable or nuanced to effectively address the distinct challenges present in diverse settings across the country. Instead of a cohesive and unified national strategy, responses remain fragmented, characterized by limited coordination between crucial clinical safety measures and broader public health initiatives.

These policy gaps collectively reflect a systemic inability to effectively translate scientific knowledge and policy intentions into tangible action. Addressing these deeply entrenched issues requires not only the diligent development of comprehensive and evidence-based policies but, more critically, the establishment of robust mechanisms to ensure their consistent implementation, rigorous monitoring, and continuous evaluation across all levels of the healthcare system.

Discussion

The simultaneous emergence of a pediatric, healthcare-associated HIV outbreak in Taunsa and the steady increase in HIV case detection in Islamabad provide a critical perspective on Pakistan's evolving HIV epidemic, revealing interconnected vulnerabilities across the continuum of care (4,7). These events are not isolated incidents but rather expose systemic weaknesses in clinical safety, surveillance infrastructure, and community-level prevention efforts. This analysis synthesizes these dimensions to illustrate how preventable pediatric infections and shifting patterns of adult transmission are rooted in shared governance challenges and implementation shortfalls.

The outbreak in Taunsa highlights that iatrogenic HIV transmission remains a significant and often unaddressed risk within segments of Pakistan's healthcare system (4). Drawing parallels with earlier outbreaks in Larkana, the persistent issues of unsafe injections, inadequate sterilization practices, and fragmented oversight are identified not as anomalies, but as prevalent issues in routine practice, especially in peripheral facilities (1). While national policies exist to guide infection control, their consistent application at the facility level is uneven. This disparity is exacerbated by resource constraints, staffing shortages, and limited supervisory capacity, creating environments where routine medical procedures can inadvertently facilitate the transmission of bloodborne infections, particularly among children who are disproportionately exposed to injections (2,13).

Conversely, the epidemiological profile emerging from Islamabad points to a distinct, yet equally urgent, challenge: behaviorally driven transmission influenced by social determinants. Although improved testing capacities may partially account for the rise in reported cases, the broad demographic spread of affected individuals, including men, women, transgender individuals, and children, indicates diverse exposure risks (14). This reflects significant gaps in prevention programs, such as insufficient harm reduction services, limited access to sexual health education, and inadequate community outreach. International evidence demonstrates that integrated, rights-based interventions, including needle-syringe programs, opioid substitution therapy, accessible condom distribution, and culturally appropriate education, can significantly curb transmission. However, such services are often scarce, inconsistently funded, or altogether absent in Pakistan, leading to fragmented and underpowered urban prevention efforts (15,16).

A central insight derived from juxtaposing these two contexts is the fragmentation within the national HIV response. While Taunsa exemplifies failures in clinical safety, Islamabad reveals shortcomings in behavioral prevention, yet both issues stem from a common root: a national HIV response operating in silos rather than synergistically. Public, private, and informal healthcare providers often coexist with minimal coordination, divergent standards, and limited accountability. Without a unified strategy that bridges clinical quality and community engagement, responses remain episodic, reacting to crises rather than preventing them. The absence of a comprehensive surveillance strategy and mechanism has historically made it challenging to detect and control infectious disease epidemics in Pakistan (4,2,6).



The disparity between policy formulation and practical implementation is another critical theme. Pakistan possesses national guidelines for infection control and HIV prevention; however, enforcement mechanisms are weak, and accountability is inconsistent. Routine audits are infrequent, licensing systems are unevenly applied, and data systems are often fragmented. These limitations hinder the early detection of outbreaks and allow unsafe practices to persist. Consequently, surveillance data may underestimate the true burden due to underreporting and delayed diagnosis, while periodic surges in detected cases might merely reflect episodic testing campaigns rather than continuous, systematic monitoring. Strengthening surveillance, therefore, necessitates not only technical upgrades but also stronger governance, transparency, and accountability (17).

Ethically, the continued occurrence of pediatric HIV infections linked to healthcare exposure represents a profound failure of duty of care. Children infected through unsafe medical practices face lifelong medical, psychosocial, and socioeconomic consequences from a condition that is largely preventable in this context (1). Beyond the direct clinical implications, these cases are associated with significant stigma, social exclusion, and barriers to education, compounding their long-term impact. The erosion of public trust is equally consequential; when healthcare facilities are perceived as unsafe, communities may withdraw from essential services, including immunization and maternal-child health programs, thereby undermining broader public health goals (9).

From a health systems perspective, these findings emphasize the need to reconceptualize HIV control as a cross-cutting governance issue rather than a siloed disease program. Effective control demands coordinated investment in infection prevention, workforce development, regulation of all care providers (both formal and informal), community-led prevention, and robust, interoperable data platforms (19). Countries that have successfully curbed iatrogenic transmission have achieved this through unwavering enforcement of single-use injection policies, rapid scale-up of safety-engineered devices, and embedded quality improvement processes. Similarly, reductions in behaviorally driven transmission have resulted from sustained investment in harm reduction and comprehensive community engagement strategies. Pakistan's experience suggests that partial or episodic implementation of these strategies yields only partial results (5,19).

Crucially, reform efforts must consider the political economy of healthcare delivery. The widespread practice of injections, for instance, is influenced not only by clinical habits but also by patient expectations and provider incentives. Informal providers often fill crucial gaps in access but operate largely outside regulatory frameworks. Sustainable progress will necessitate pragmatic, inclusive strategies that combine enforcement with engagement, such as integrating informal providers into accredited training pathways, aligning financial and reputational incentives with safe practices, and empowering communities to demand and recognize quality, respectful care (20).

Ultimately, the current situation presents an opportunity not just to contain outbreaks but to rebuild trust and enhance resilience. Transparent communication about risks, timely and impartial outbreak investigations, and visible accountability measures are essential to restore public confidence (5). The evidence from Taunsa and Islamabad illustrates a dual imperative: safeguarding patients within health facilities and supporting individuals within their communities. Both demands arise from deeper, shared challenges of fragmented governance, inconsistent enforcement, and insufficient integration of prevention and care efforts (4,7). Addressing these challenges will require sustained political will, cross-sectoral coordination, and a decisive pivot from reactive crisis response to proactive, equitable, and system-wide prevention.

Actionable Policy Recommendations

Effectively addressing the preventable spread of HIV in Pakistan necessitates a comprehensive, multi-faceted policy response that targets both clinical and community-level determinants. The following recommendations are strategically designed to bolster health system capacity, enhance patient safety, and significantly reduce transmission risks across diverse operational settings.

1. Strengthening Infection Control

A foundational imperative is the establishment of a robust and rigorously enforceable infection control framework across all healthcare facilities. This must encompass the implementation of mandatory sterilization audits, conducted at regular intervals by independent regulatory bodies. These audits are crucial for assessing strict compliance with infection prevention standards, including meticulous equipment sterilization, proper waste disposal, and unwavering adherence to aseptic techniques. Facilities found to be non-compliant with these critical standards should face decisive corrective actions, which may include penalties or temporary operational closure.

The universal adoption of auto-disable (AD) syringes represents another pivotal intervention. These single-use devices are specifically engineered to prevent reuse, thereby eliminating a primary source of iatrogenic transmission. Government procurement policies should unequivocally prioritize AD syringes for all public health programs, including immunization and routine clinical care, and robust incentives should be



provided to encourage their widespread use in private healthcare settings.

Furthermore, there is an urgent need for standardized infection control protocols that are uniformly applied nationwide. These protocols must be meticulously aligned with international guidelines and thoughtfully adapted to local contexts. Comprehensive training programs are indispensable to ensure that all healthcare workers, including those in peripheral and rural facilities, receive adequate instruction in best-practice infection prevention. Continuous professional development and mandatory certification in infection control are essential components of this strategy.

2. Health System Regulation

Strengthening regulatory oversight is paramount to ensuring the consistent delivery of safe and high-quality healthcare. All healthcare providers, including those operating within the private and informal sectors, must be subject to mandatory licensing and accreditation systems. Regulatory authorities are tasked with establishing clear and transparent criteria for licensing, encompassing minimum standards for infrastructure, essential equipment, and staff qualifications.

A targeted and decisive initiative against unregulated and informal clinics is necessary to eradicate unsafe practices. This requires coordinated efforts among health departments, local authorities, and law enforcement agencies to identify and promptly address facilities operating without proper authorization. Concurrently, strategic approaches should be developed to integrate informal providers into the formal system through structured training and certification programs, where feasible and appropriate.

To foster robust compliance, stringent accountability mechanisms must be introduced. This includes establishing clear lines of responsibility within healthcare institutions, implementing transparent reporting systems for malpractice, and enforcing disciplinary actions against violations of infection control standards. Transparency throughout these processes is fundamental to building public trust and ensuring that healthcare providers consistently adhere to established guidelines.

3. Surveillance and Screening

Effective surveillance systems are critical for the early detection and rapid response to HIV outbreaks. Pakistan should develop a comprehensive nationwide HIV surveillance system that seamlessly integrates data from public and private healthcare facilities, laboratories, and community programs. This system must be designed to enable real-time reporting and sophisticated analysis, thereby empowering health authorities to promptly identify trends and mount timely interventions.

The introduction of routine HIV screening programs is equally vital, particularly in high-risk and outbreak-prone areas. These programs must be accessible, affordable, and fully integrated into primary healthcare services. Special emphasis should be placed on pediatric-focused surveillance, including targeted screening of children in affected regions and those with frequent healthcare exposure. Early diagnosis is indispensable for timely treatment initiation and the prevention of further transmission.

Improving data transparency constitutes another key component. Public reporting of HIV data, while rigorously ensuring patient confidentiality, can significantly enhance accountability and inform evidence-based decision-making. Transparent data systems also facilitate crucial collaboration with international health organizations and support the development of highly targeted interventions.

4. Prevention Strategies

Preventing HIV transmission demands sustained and multi-pronged efforts to address both behavioral and structural risk factors. Comprehensive public awareness campaigns should be launched to educate communities about HIV transmission, effective prevention methods, and the critical importance of safe medical practices. These campaigns must be culturally sensitive and strategically utilize multiple platforms, including mass media, social media, and robust community outreach programs.

Integrating school-based health education into national curricula is essential to foster early awareness and promote preventive behaviors among young populations. Such programs should provide age-appropriate information on hygiene, disease prevention, and stigma reduction, thereby empowering students to make informed health decisions.

In urban settings, particularly where drug use is a significant driver of transmission, the implementation of harm reduction programs is critical.

These may include needle and syringe exchange programs, opioid substitution therapy, and targeted interventions for high-risk groups. Additionally, access to counseling and rehabilitation services should be expanded to comprehensively address substance use disorders and reduce associated risks.

5. Treatment and Support Services

Ensuring access to timely and effective treatment is a cornerstone of comprehensive HIV control. Pakistan must significantly expand the availability of pediatric antiretroviral therapy (ART) centers, particularly in underserved and high-burden areas. These centers should provide holistic care, encompassing diagnosis, treatment, monitoring, and follow-up services meticulously tailored to the unique needs of children. Beyond clinical care, there is an urgent need for integrated psychological and social support services for affected individuals and their families. Counseling services can effectively address the emotional and mental health challenges associated with an HIV diagnosis, while social support programs can assist families in managing the financial burden of long-term treatment.

Finally, robust community engagement initiatives are essential to effectively reduce stigma and discrimination. Collaborating with respected community leaders, religious figures, and local organizations can significantly promote acceptance, dispel myths about HIV, and encourage individuals to seek testing and treatment without fear of social repercussions. Building supportive community environments is crucial for improving health outcomes and ensuring the sustained success of public health interventions.

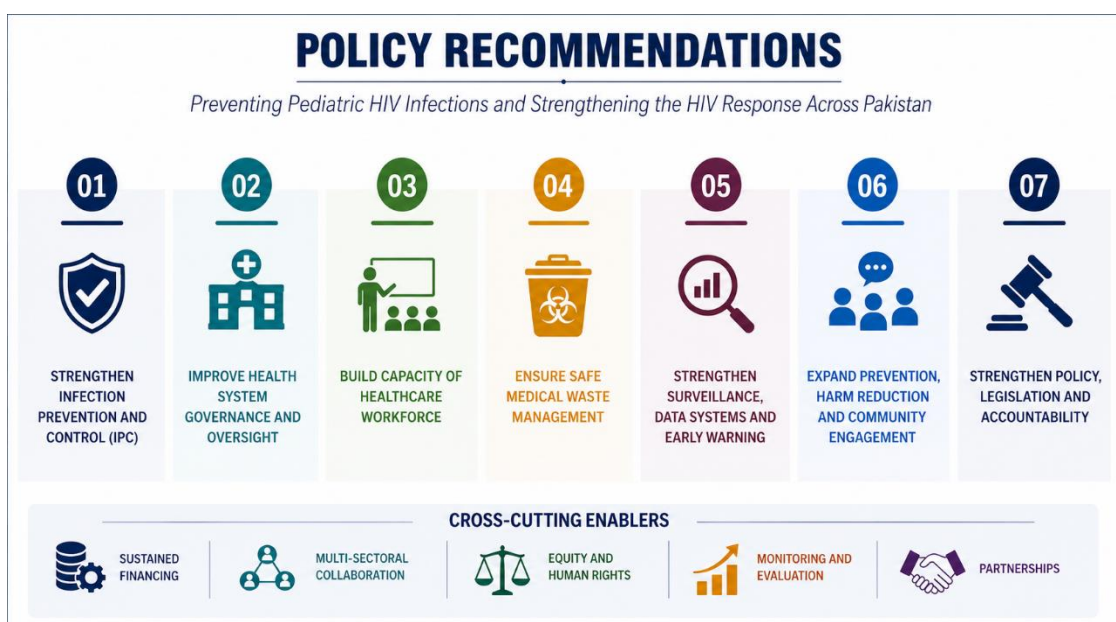


Figure 1: Policy Recommendations

Call to Action

The evidence laid before us demands an immediate, unified, and sustained response, piecemeal solutions simply won't cut it. Pakistan must transition swiftly from mere policy statements to concrete, enforceable actions. This begins with establishing a national command structure for HIV prevention and infection control, endowed with clear authority, defined timelines, and measurable targets. Within the next 6–12 months, the government should mandate the universal use of auto-disable syringes, implement independent, routine sterilization audits across all public and private facilities, and directly link facility licensing to strict compliance with infection control standards. Concurrently, a nationwide, integrated surveillance system must be fully operationalized, featuring real-time reporting from laboratories and clinics. This will enable rapid outbreak detection and facilitate transparent public communication. High-burden districts require targeted pediatric screening and an immediate expansion of child-friendly ART services, ensuring that no affected child is left without timely treatment and essential follow-up care.

Equally critical is the robust scaling-up of evidence-based prevention strategies in urban centers. This includes vital harm reduction services for people who use drugs (such as needle and syringe programs and opioid substitution therapy), comprehensive sexual health education, and community-led awareness campaigns designed to reduce stigma and significantly increase testing uptake. Regulatory bodies must rigorously



enforce licensing requirements, promptly shut down unsafe and unregistered clinics, and institute accountability mechanisms with genuine consequences for violations. This monumental effort cannot solely rest on the health sector; it necessitates broad multi-sector collaboration. Education systems must deliver impactful school-based programs, media outlets need to normalize testing and actively counter misinformation, law enforcement must support regulatory efforts, and civil society organizations are crucial for engaging communities and safeguarding patient rights. While international partners can offer invaluable technical and financial support, the ultimate leadership must be national, consistent, and transparent.

Above all, restoring public trust is absolutely essential. This will fundamentally depend on visible accountability, open data sharing, and demonstrable improvements in safety and the quality of care. Pakistan stands at a critical juncture: it can either perpetuate a cycle of preventable outbreaks or commit to the systemic reform necessary to safeguard its most vulnerable citizens. The choice must be decisive. Immediate action, sustained investment, and unwavering political will are imperative to prevent further harm and to construct a health system that genuinely protects, rather than endangers, those it serves.

Conclusion

The recent pediatric HIV outbreak in Taunsa, tragically coupled with a concerning rise in HIV cases in Islamabad, underscores a critical and undeniable reality: Pakistan is not merely contending with isolated incidents, but rather a profound systemic public health failure. These events starkly reveal deep-rooted deficiencies in infection control, healthcare regulation, and the efficacy of disease prevention strategies. Preventable HIV infections, particularly among our children, represent an unacceptable failure of governance and accountability. Immediate and sustained policy action is not just advisable, it is essential to address these critical gaps, rebuild public trust, and protect our most vulnerable populations. Without comprehensive and decisive reform, Pakistan risks a continuation of outbreaks and an escalating HIV burden that could have been entirely avoided. The time to act is unequivocally now, not only to contain the current crisis but to ensure that such preventable tragedies never, ever occur again.

COI: The author declare that he has no conflicts of interest related to this study.

Ethical Consideration: This study adheres to ethical principles by ensuring confidentiality, anonymity, and responsible use of publicly available data, with no identification of individual patients. Special consideration is given to the protection of vulnerable populations, particularly children, emphasizing respect, non-maleficence, and the ethical obligation to prevent harm through improved healthcare practices.

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