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Migration, HIV/AIDS and Health System Leadership: Lessons from the Ukrainian Refugee Influx Triggered by Russia's Brutal War of Aggression against Ukraine for Future Pandemics

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Abstract

Background: *Russia's brutal war of aggression against Ukraine has triggered the largest refugee crisis in Europe since World War II, creating a sustained humanitarian and health-system shock. The Baltic states have received a high share of displaced people relative to population size while already facing a comparatively high HIV burden. Forced migration increases vulnerability to infectious diseases and disrupts continuity of care.*

Objective: *To examine how the refugee influx from Russia's war against Ukraine has affected HIV epidemiology and service delivery in the Baltics and to extract transferable preparedness lessons grounded in the AIDS and COVID-19 pandemic experiences.*

Methods: *We conducted a descriptive policy-epidemiological analysis of regional HIV indicators from WHO Europe/ECDC surveillance (2023 data, published 2024) (1) and WHO assessment on under- and late diagnosis (2), complemented by refugee health access evidence from IOM/UNHCR assessments in Lithuania and Estonia and Baltic-wide SEIS datasets (2024–2025) (4–7), and programmatic review of regional initiatives such as BaltHUB (8). The period analysed is 2022–2025.*

Results: *In the WHO European Region, nearly 113,000 people were newly diagnosed with HIV in 2023 (12.7 per 100,000), including about 25,000 in the EU/EEA (1). Late diagnosis remains a defining challenge, and under-testing persists in parts of the Region (2). The same surveillance release notes that Lithuania recorded its highest annual HIV diagnosis count in a decade (1); (Baltic national surveillance data compiled in the accompanying dataset). In 2023, Lithuania registered 267 new HIV diagnoses (9.3 per 100,000) and in 2024—196 (6.8 per 100,000). Estonia reported 183 (13.4/100,000) in 2023 and 133 (9.7/100,000) in 2024; Latvia—188 (10.0/100,000) in 2023 and 180 (9.6/100,000) in 2024. In Lithuania, foreigners accounted for 47.2% of diagnoses in 2022 (Ukrainians 42.9%), 37.8% in 2023 (Ukrainians 25.8%), and 34.7% in 2024 (Ukrainians 25.0%). Migrants accounted for 48% of HIV diagnoses in the EU/EEA in 2023, underlining the centrality of mobility for contemporary HIV control (3). In the Baltics, emergency measures secured ART access and essential care for refugees; IOM and UNHCR surveys show broad health-care reach but persistent barriers in language support, psychosocial care, and service availability outside major cities (4–7). BaltHUB provides refugee-focused HIV information, psychosocial linkage, and support to key populations among displaced Ukrainians (8).*

Conclusions: *The refugee crisis caused by Russia's aggression demonstrates that pandemic preparedness depends on continuity of care for chronic infectious diseases, stigma-reducing multilingual communication, and rights-based leadership (1,2). Integrating migrant health into routine HIV programs, strengthening Baltic/EU cross-border ART continuity and surveillance (9), and investing in leadership capacity are essential for future pandemics. Post-war antimicrobial resistance, wound infections, and mental-health sequelae represent an emerging "second wave" requiring coordinated regional action (11).*

Keywords: Migration and Health, HIV/AIDS, Refugees, Health System Leadership, Pandemic Preparedness, Continuity of Care.

Introduction

Russia's brutal war of aggression against Ukraine has produced a prolonged displacement crisis affecting health systems across Europe. The Baltic states have played a prominent role as host countries, receiving large numbers of refugees per capita [1, 2]. Displacement is not epidemiologically neutral: it reshapes risk environments, interrupts treatment trajectories, and amplifies social determinants such as poverty, uncertainty, trauma and stigma [3].

It is important to state clearly that this displacement and health-system shock has not been caused by an abstract "war in Ukraine," but by Russia's brutal war of aggression against Ukraine, which violates international law and has produced deliberate large-scale civilian harm, including forced migration and long-term public health consequences [4].

HIV control in the Baltics must be interpreted against a dual backdrop. First, the region has a persistent HIV burden higher than much of Western Europe. Second, a European-wide rebound in testing after COVID-19 has revealed previously undetected infections. The 2024 ECDC/WHO surveillance report (2023 data) indicates increasing diagnoses in several countries and notes that Lithuania has reached the highest annual number in a decade; (Baltic national surveillance data compiled in the accompanying dataset). In 2023, Lithuania registered 267 new HIV diagnoses (9.3 per 100,000) and in 2024—196 (6.8 per 100,000). Estonia reported 183 (13.4/100,000) in 2023 and 133 (9.7/100,000) in 2024; Latvia—188 (10.0/100,000) in 2023 and 180 (9.6/100,000) in 2024. In Lithuania, foreigners accounted for 47.2% of diagnoses in 2022 (Ukrainians 42.9%), 37.8% in 2023 (Ukrainians 25.8%), and 34.7% in 2024 (Ukrainians 25.0%). At the EU/EEA level, migrants now comprise nearly half of new diagnoses, emphasizing that mobility and health are structurally linked [5].

Historical context for Eastern Europe

In the early phase of the AIDS pandemic, Lithuania managed to keep HIV spread comparatively better controlled than many neighbouring countries across Eastern Europe, despite facing essentially the same structural risk environment after the Soviet Union's collapse. Across the region, the epidemic was driven by rapidly expanding injecting drug use, large prison populations, socioeconomic instability, and concentrated transmission in key populations such as people who inject drugs and sex workers [6, 7].

Lithuania's relative early success was strongly linked to a rapid institutional and programmatic response. The Lithuanian AIDS Centre was established in 1989, and the first National AIDS Prevention and Control Programme was adopted in 1990—among the earliest systematic HIV policy frameworks in the post-Soviet space. From the outset, prevention was explicitly focused on vulnerable and key populations, using community outreach, low-threshold counselling/testing, prison-based interventions, and early harm-reduction development. These efforts delayed wider epidemic generalisation in Lithuania during the 1990s and early 2000s and were cited as good practice for other post-Soviet countries. This precedent underscores a transferable lesson for today: even in high-risk environments shared across Eastern Europe, early, evidence-based and stigma-sensitive prevention targeted to key populations can keep HIV under control—an approach that should now be adapted to migrant-inclusive preparedness strategies in the current refugee context and future pandemics.

Methods

We Conducted a Descriptive Mixed Analysis Combining:

1. Secondary epidemiological review of WHO Europe/ECDC HIV surveillance (2023 data, published 2024)and Baltic national reports (Baltic national surveillance data compiled in the accompanying dataset). In 2023, Lithuania registered 267 new HIV diagnoses (9.3 per 100,000) and in 2024—196 (6.8 per 100,000). Estonia reported 183 (13.4/100,000) in 2023 and 133 (9.7/100,000) in 2024; Latvia—188 (10.0/100,000) in 2023 and 180 (9.6/100,000) in 2024. In Lithuania, foreigners accounted for 47.2% of diagnoses in 2022 (Ukrainians 42.9%), 37.8% in 2023 (Ukrainians 25.8%), and 34.7% in 2024 (Ukrainians 25.0%).; indicators included diagnosis rates, late presentation, and migrant share where available.
2. Refugee health access evidence from IOM DTM reports in Estonia and Lithuania and UNHCR socio-economic and health-needs assessments in the Baltics [8, 9].
3. Programmatic/policy appraisal of the regional refugee response, including ART access facilitation, counselling/testing linkage, and coordination mechanisms supported by BaltHUB and partner NGOs, aligned with European operational guidance [10, 11].

No primary patient-level data were collected.

Results

European and Baltic epidemiological context

In 2023, the WHO European Region recorded nearly 113,000 new HIV diagnoses (12.7/100,000), while about 25,000 diagnoses occurred in the EU/EEA. Late presentation remains a central obstacle to ending AIDS, and WHO highlights continued under- and late diagnosis, particularly in eastern parts of the Region.

The surveillance release notes that some countries—including Lithuania—reported the highest annual diagnosis count in the past decade; (Baltic national surveillance data compiled in the accompanying dataset). In 2023, Lithuania registered 267 new HIV diagnoses (9.3 per 100,000) and in 2024—196 (6.8 per 100,000). Estonia reported 183 (13.4/100,000) in 2023 and 133 (9.7/100,000) in 2024; Latvia—188 (10.0/100,000) in 2023 and 180 (9.6/100,000) in 2024. In Lithuania, foreigners accounted for 47.2% of diagnoses in 2022 (Ukrainians 42.9%), 37.8% in 2023 (Ukrainians 25.8%), and 34.7% in 2024 (Ukrainians 25.0%).. This trend aligns with post-COVID testing recovery and ongoing structural vulnerabilities, including those shaped by migration. In the EU/EEA, migrants constituted 48% of HIV diagnoses in 2023, confirming that mobility is a core driver of contemporary HIV epidemiology.

Table 1: New HIV diagnoses (absolute number and rate per 100,000) in the Baltics, 2019–2024 (national surveillance compilation)

Year	Lithuania (n)	Lithuania (/100k)	Estonia (n)	Estonia (/100k)	Latvia (n)	Latvia (/100k)
2019	151	5.4	178	13.4	306	15.9
2020	139	4.9	147	11.1	257	13.5
2021	121	4.3	125	9.4	212	11.2
2022	252	8.9	250	18.8	229	12.2
2023	267	9.3	183	13.4	188	10.0
2024	196	6.8	133	9.7	180	9.6

Table 2: Late HIV diagnosis among adults (>14 years) in the Baltics vs EU/EEA, 2023 (CD4<350 at diagnosis or missing baseline CD4; as compiled in the dataset)

Area	2023 (%)	2024 (%)
Lithuania	56.7	42.5
Estonia	45.9	52.7
Latvia	64.5	51.7
EU/EEA	52.7	48.0

Key takeaways from 2019–2024 surveillance: (i) Lithuania's diagnoses increased sharply in 2022–2023 (252→267) with a decline in 2024 (196), while Latvia and Estonia show a downward trend in absolute counts but still high rates per 100,000 compared with much of the EU; (ii) late diagnosis remains high across the Baltics (2023: LT 56.7%, EE 45.9%, LV 64.5% vs EU/EEA 52.7%), underscoring ongoing under-testing and delayed linkage to care; (iii) in Lithuania, the post-2022 migrant component is substantial: Ukrainians accounted for 108 diagnoses in 2022, 69 in 2023, and 49 in 2024; among Ukrainians, 97 people started ART in 2022, 52 in 2023 and 46 in 2024 (provisional 2025 to Dec 1: 6).

Refugee Health Needs and Access to Care

IOM and UNHCR assessments show that refugees generally have legal access to care under temporary protection, but recurring obstacles persist: language and system-navigation challenges, uneven availability in smaller municipalities, and unmet psychological and chronic-disease needs. These barriers matter for HIV outcomes because delayed testing or disrupted ART often follow from service-access uncertainty and trauma-associated avoidance.

Baltic ministries and clinics introduced rapid emergency pathways to ensure ART continuation and essential medical support, consistent with European operational recommendations. These measures reduced immediate risks of treatment interruption among displaced people living with HIV. However, displacement has become protracted, making long-term integration into national HIV programs a strategic necessity.

BaltHUB and Civil Society Support

BaltHUB operates as a regional coordination hub providing refugee-focused HIV information, psychosocial support, legal guidance, and linkage to testing and ART for PLHIV and other key populations. It complements national systems by offering trusted community access and cross-border referrals, reflecting successful AIDS-era service models centred on partnership between clinical services and communities.

Communication and the Role of Professionals

Multilingual communication (Ukrainian and Russian) and NGO involvement improved awareness of available services and reduced fear of discrimination. Telemedicine contributed to continuity of counselling and follow-up among mobile patients.

Dermatovenereologists and family doctors played a strategic bridging role by recognizing STI-related signs suggestive of HIV and linking refugees to HIV testing and treatment pathways, in both Baltic practice and European guidance on continuity of HIV care for displaced populations.

Discussion Lessons for Future Pandemics

The Natural Trajectory of Pandemics and the Risk of "Agenda Disappearance"

A recurrent pattern across major pandemics is that societies gradually develop routine "pandemic practices," learn to live with ongoing risk, and the crisis shifts from acute emergency to chronic or endemic management. This social normalization does not mean the pathogen disappears; rather, the disease becomes less visible in everyday and political agendas, even while continuing to cause morbidity, mortality and inequality. WHO defines "pandemic fatigue" as a natural demotivation to maintain protective behaviours and to seek information during prolonged adversity, and it warns that public and political attention typically declines before risk disappears [12].

This "agenda disappearance" is observable in both HIV/AIDS and COVID-19. HIV has never disappeared; it remains a persistent public health threat in Europe, especially where late diagnosis and testing gaps continue. Likewise, COVID-19 has transitioned into long-term management, with recurrent waves, but has largely faded from day-to-day public health priorities. When attention declines faster than risk, prevention systems weaken, surveillance becomes less proactive, and responses turn reactive rather than strategic.

Lithuania illustrates this institutional vulnerability. After an early period of strong, targeted HIV prevention led by the Lithuanian AIDS Centre (11,12), the communicable-disease architecture

was reorganized. The Centre for Communicable Diseases and AIDS (ULAC) was formally merged into the National Public Health Centre (NVSC) in 2022, with implementation from July 1 [13]. While reforms may aim to improve efficiency, they risk diluting specialized HIV/STI expertise and weakening proactive communication if not actively safeguarded. Fragmentation of information channels and a shift toward passive, event-driven messaging can reduce public engagement, delay testing uptake, and reinforce late presentation—precisely the continuing challenge in European surveillance.

A similar normalization dynamic is now visible beyond health. Many Western societies have also begun to habituate to a distant war. Public attention to Russia's brutal war against Ukraine has declined in parts of Western Europe, with growing preference for "quick peace" narratives or reduced assistance [14]. This fatigue risks underestimating the systemic threat that imperial Russian policy poses to a civilized, rights-respecting world order. Just as pandemics do not end when attention fades, wars do not become harmless because they move down a media agenda; when complacency replaces vigilance, both security and public health vulnerabilities grow.

For future pandemics, the lesson is clear: as societies "learn to live with" protracted crises, health systems and democratic institutions must not allow the agenda to vanish. Sustained, visible and specialized prevention and surveillance capacity—including for HIV, STIs and new threats—needs institutional protection even after the acute political phase ends [15, 16].

Continuity of care is a preparedness core

AIDS demonstrated that treatment interruptions translate into preventable deaths and renewed transmission, while COVID-19 showed how quickly routine services collapse under acute crises. Russia's war-driven displacement adds a third dimension—mobility under insecurity—making ART continuity protocols across borders a basic preparedness requirement. The Baltic emergency response shows feasibility, but sustainability requires embedding such pathways into routine HIV programs for both refugees and host populations.

Stigma-Reducing Risk Communication

Both HIV and COVID-19 highlight that stigma and misinformation reduce testing, delay care-seeking and erode trust. Refugee surveys confirm that language and psychological barriers still shape access for displaced populations. Multilingual, community-delivered communication thus functions as a practical stigma-reduction tool enabling earlier care engagement.

Migrants are Central to European HIV Control

With migrants accounting for 48% of EU/EEA diagnoses in 2023, migration-sensitive HIV services are no longer peripheral. The refugee influx makes visible what surveillance already indicates: future HIV and broader pandemic responses must be designed for high-mobility populations.

Regional Coordination and Data Sharing

Baltic cooperation through ministries, the Baltic Assembly, WHO/ECDC channels and NGOs reduced service fragmentation and supported continuity as refugees moved across borders. Cross-country sharing of ART history, resistance patterns and referral status would prevent loss-to-follow-up and offers a scalable model for EU pandemic health-security frameworks.

The Post-War "Second Wave": AMR, Wounds, Mental Health

WHO reporting on Ukraine underscores that war conditions have lasting implications for infectious-disease control and health-system resilience. As displacement continues and post-war recovery begins, antimicrobial resistance driven by wartime injuries and antibiotic use, alongside a prolonged mental-health crisis, may define the next phase of health-security risks. These trends may indirectly increase HIV vulnerability and undermine ART adherence, requiring integrated Baltic-EU strategies combining HIV services, AMR oversight and psychosocial care.

Limitations

This analysis relies on secondary surveillance and program evidence. Refugee mobility and heterogeneous registries may mask true HIV burden and subgroup disparities. UNHCR/IOM estimates capture broad access patterns but may understate persistent barriers among marginalized groups.

Conclusions

The refugee influx caused by Russia's brutal war of aggression against Ukraine reshaped HIV-related service needs in the Baltics and tested health systems under a sustained humanitarian shock. European surveillance confirms continuing late diagnosis challenges and a strong migrant share of new infections, while Lithuania's decade-high diagnosis count signals persistent structural vulnerability (1–3); (Baltic national surveillance data compiled in the accompanying dataset). In 2023, Lithuania registered 267 new HIV diagnoses (9.3 per 100,000) and in 2024—196 (6.8 per 100,000). Estonia reported 183 (13.4/100,000) in 2023 and 133 (9.7/100,000) in 2024; Latvia—188 (10.0/100,000) in 2023 and 180 (9.6/100,000) in 2024. In Lithuania, foreigners accounted for 47.2% of diagnoses in 2022 (Ukrainians 42.9%), 37.8% in 2023 (Ukrainians 25.8%), and 34.7% in 2024 (Ukrainians 25.0%).

At the same time, Lithuania's early AIDS-era experience shows that even in Eastern Europe's shared high-risk environment, rapid institutional action and prevention focused on key populations can successfully contain HIV.

Future preparedness therefore requires:

1. Migrant/refugee-inclusive HIV/STI programs integrated into routine care.
2. Formal cross-border ART continuity and shared referral tools.
3. Expanded community-based and self-testing pathways to reduce late diagnosis.
4. Systematic investment in rights-based leadership and multilingual risk communication as preparedness infrastructure.
5. Integration of HIV control with AMR prevention and mental-health responses in the post-war phase.

Handled well, this crisis can become a blueprint for European health security rooted in solidarity, evidence and resilience—without repeating the recurrent mistake of letting long crises disappear from the agenda while their risks remain.

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