

Clinical Infectious Needs of Adults Displaced from Ukraine

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Abstract

Aim

Since February 2022, Ireland has facilitated the resettlement of 119'043 Ukrainians. Our objective was to evaluate case complexity, barriers to access and impact on service.

Methods

A retrospective chart review using the electronic patient record, data was compiled and results collated.

Results

123 people displaced from Ukraine newly attended between February 2022–April 2024, 63/123 (51.2%) females. 76 (61.8%) had HIV (PLWH); 68 (89.5%) known diagnoses; 39 (57.3%) were virally suppressed on ART, 27 (40%) were viraemic. Seven (5.7%) newly diagnosed; 4 (57%) with advanced disease (mean CD4 285 IU/mL [28 - 753]). Thirty-two (42%) co-infected with HCV, 4 (5.3%) with HBV. 37 (30%) had HCV mono-infection, 9 (7.3%) had HBV mono-infection. There were 4 (3.25%) cases of active TB; three of MDR pulmonary disease and one extrapulmonary case. Four, 10.5% of women LWH have had pregnancies. Average distance travelled to clinic is 103.9KM; 50.4% (62/123) could access public transport. 115 (93.5%) required an interpreter. 26 (21%) required admission; average length of stay 22.9 days (597 bed days).

Discussion

High background rates of infectious diseases Ukraine necessitated specialist healthcare along with intensified surveillance. We identified significant case complexity and high ID service needs.

Introduction

The Russian invasion of Ukraine on 24 February 2022 resulted in the largest forced migration and humanitarian crisis in Europe since World War II. In response, on 04 March 2022, the Council of the European Union activated EU Temporary Protection Directive 2001/55/EC, to provide immediate protection rights in EU member states for displaced Ukrainians, granting access to the labour market, accommodation, social welfare and healthcare. At the time of this study an estimated 6.5 million had fled Ukraine with a further 5 million internally displaced.¹ Updated figures from the Irish Central Statistics Office (CSO) show Ireland has granted Temporary Protection to a cumulative total of 122,636 Ukrainians (2% of the 2022 Irish Census population), 84,739 have had recent administrative activity, indicating that a number have changed status or left since the conflict began.² At the time of data collection, a cumulative total of 119,043 Beneficiaries of Temporary Protection (BoTPs) had been issued Personal Public Service Numbers (PPSNs). The West of Ireland became home to a large number, with 18,840 (18% of resident population) living in the five main counties served by our ID clinic at the time of this study.³

Ukraine has long faced significant infectious disease challenges, including overlapping epidemics of Human Immunodeficiency Virus (HIV) and tuberculosis (TB). TB incidence in Ukraine remains high, estimated at 71–73 cases per 100,000 of population in 2022, compared with 4.3 / 100,000 in Ireland that same year.^{4, 5} According to a report from the European Centre for Disease Prevention and Control (ECDC) in April 2022, approximately 32.6% of TB cases in Ukraine are caused by multidrug resistant (MDR) strains. Prior to the 2022 conflict, only about 55% of people with TB disease were receiving treatment.^{6, 7}

Ukraine has one of the highest HIV infection rates in Europe. National prevalence is estimated at 1% of the general population, rising to approximately 21% among people who inject drugs (PWID) and 7.5% among men who have sex with men (gbMSM). The ECDC estimates that around 250,777 people are living with HIV (PLWH) in Ukraine, 46% of whom are women. According to UNAIDS (2021), about 75% of PLWH are aware of their status, 61% are receiving antiretroviral therapy, and 58% have achieved viral suppression.^{8, 9} Disruption to health services caused by the war—including damage to healthcare facilities and interruptions to medicine supply—risks treatment interruption, viral rebound, disease progression and onward transmission.

Viral hepatitis is also a public health concern in Ukraine. Among adults, the prevalence of hepatitis B surface antigen (HBsAg) positivity was estimated at 1% in 2020, while active hepatitis C infection (HCV-RNA positive) was estimated at 3%. Prevalence is higher in key populations; including PWID, (HBsAg 8.5% and anti-HCV 56.3%) and PLWH.^{10, 11} Uptake of preventative measures, particularly vaccination, remains below the recommended targets.¹²

These health challenges are compounded by the destruction of health infrastructure and large-scale displacement caused by the war, underscoring the need for sustained access to screening, treatment and specialist care.^{13–15}

Methods

We performed a retrospective chart review for adult (>18 years) Ukrainian refugees newly attending our clinic between February 2022 and April 2024; 113-week study period. Data was collected by reviewing clinical notes and results on the electronic patient record, a pre-populated template was used and 2 members of the study team were responsible for data collection. Data was compiled and results collated on an encrypted excel. Ethical approval from our local Clinical Research & Ethics Committee was obtained.

Results

Between February 2022 and April 2024, 123 people displaced from Ukraine following the Russian invasion in February 2022 newly attended our service; 60 males (48.8%) and 63 females (51.2%); mean age 44.6 years (range, 18 – 79 years). Inclusion was based on displacement from Ukraine and new attendance at the service rather than legal or Temporary Protection status. Individual legal status was not collected. Twenty-six (26/123, 21%) subsequently transferred care to an alternative clinical site; 17 (13.8%) to other services within Ireland, 4 (3.3%) returned to Ukraine, 1 individual relocated elsewhere and 4 patients (3.3% of total cohort) were lost to follow-up.

Co-infection was identified in 16.3% of individuals (20/123), defined as to blood borne viruses (BBV) or a BBV occurring alongside tuberculosis disease. The most common co-infection was HIV and hepatitis C virus (HCV), identified in 26% of those referred (32/123).

Table 1. General patient characteristics and referral source information

Gender							
• Male	60 males (48.8%)						
• Female	63 females (51.2%)						
Average age	44.9 years within male group 44.5 years within female group						
Mono / Dual Infection							
• Single infection	103 (83.7%)						
• > 1 Infection (HIV/HCV/HBV/TB)	20 (16.3%)						
Route of specialist referral							
• General Practitioner	65 (53%)						
• Not documented in our records	32 (26%)						
• Self – Referred (via email to the clinic most frequently)/Self - Presented	6 (4.9%)						
• Other	20 (16.3%) <table> <tr> <td>Services in other hospitals</td><td>9 (7.3%)</td></tr> <tr> <td>Follow up from inpatient consultation service</td><td>4 (3.3%)</td></tr> <tr> <td>HIV Ireland</td><td>2 (1.6%)</td></tr> </table>	Services in other hospitals	9 (7.3%)	Follow up from inpatient consultation service	4 (3.3%)	HIV Ireland	2 (1.6%)
Services in other hospitals	9 (7.3%)						
Follow up from inpatient consultation service	4 (3.3%)						
HIV Ireland	2 (1.6%)						

	Sexual Health Services	2 (1.6%)
	Addiction Services	1 (0.8%)
	Contact Tracing	1 (0.8%)
	No documentation regarding the referral route of one individual	

HIV: Human Immunodeficiency Virus, HCV: Hepatitis C Virus, HBV: Hepatitis B Virus, TB: Tuberculosis, ID: Infectious Diseases, HIV Ireland: Advocacy and support group for people living with HIV in Ireland.

Human Immunodeficiency Virus (HIV)

HIV was the most common infection, affecting 75 individuals, 38 (50.6%) female and 37 (49%) male. Sixty-eight (68, 55.3%) had a pre-existing diagnosis and 7 (5.7%) were newly diagnosed after arrival in Ireland. The median age was 43 years for women (range 18 - 64 years) and 42 years for men (range 20 – 66 years).

Co-infections were common: four individuals (5.3%) had Hepatitis B virus (HBV) co-infection, 32 (43%) had Hepatitis C virus (HCV) co-infection, one individual (1.3%) had HIV/HCV/HBV, and 1 (1.3%) had HIV/HBV/HCV/HDV.

Among those with a prior HIV diagnosis, the majority (67/68, 98.5%) were on antiretroviral treatment (ART) before migration with good virological control. Treatment interruption associated with forced migration resulted in detectable viraemia in 27 patients (40.3%), including 22 with high-level viraemia (VL >200 copies/mL). A change in ART regimen was required for 46 individuals (67.6%), largely because the most commonly used ART regimen in this cohort –TLD (Tenofovir Disoproxil/Lamivudine/Dolutegravir) fixed combination– is not available in Ireland.

Seven individuals (5.7% of total cohort) were newly diagnosed with HIV after arrival. In this group, the mean baseline VL was 2,017,329 copies/ mL (range 367 – 9,024,197 cpm), and the mean CD4 count was 285 cells/ μ L (range 28 - 753). Four individuals (57% of new diagnoses) had advanced disease, presenting with an AIDS-defining illness or opportunistic infection. Six of seven (86%) required hospital admission, accounting for a total of 358 inpatient bed days during the study period (average length of stay [LOS] 51 days). (*Table 2*)

Hepatitis B

Chronic Hepatitis B (HBV) infection was identified in 13 of 123 individuals (10.6%). Of these, 9 (69%) had HBV mono-infection and 4 (30.8%) had HIV co-infection. The median age was 40 years (range 31 - 62).

The mean baseline HBV viral load was 3,365.8 IU/mL (undetectable – 24,611 IU/mL), and the mean FibroScan score was 8.4 kPa (3.1 - 28.7 kPa). One individual (7.7%) had cirrhotic liver disease (FibroScan 28.7 kPa). This patient was co-infected with virally suppressed HIV, had previously cleared HCV and Hepatitis D; liver disease was further complicated by alcohol misuse.

All individuals with HIV co-infection were receiving tenofovir as part of their ART regimen (3 receiving TDF, 1 receiving TAF). Among those with HBV mono-infection, two (22%) were receiving entecavir, while the remaining 7 (77.8%) attended for routine surveillance without anti-viral treatment. (*Table 2*)

Table 2. HIV & HBV prevalence, control and management and outcomes

Existing HIV Diagnosis	68 (55.3%)
New HIV Diagnosis	7 (5.7%)
Negative HIV Antigen/Antibody	46 (37.4%)
Not Tested	2 (1.6%)
Disease Control (Existing Diagnosis)	
● Established on ART prior to migration	67 (98.5%)
● Virally suppressed on first bloods	39 (57.4%)
● Not tested at our clinical site	2 (3%)
● Viraemic	27 (40.3%)

High level viraemia (>200 copies/mL)	22 (81.5% of viraemic cohort)		
Low level viraemia (<200 copies/mL)	5 (18.5% of viraemic cohort)		
CD4 Count > 200 cells/μL	59 (87%)		
CD4 Count < 200 cells/μL	8 (11.8%)		
Treatment disruption due to war/migration process	27 (40.3%)		
Change of ART	46 (67.6%) TDF/3TC/DTG → TDF/FTC/DTG most commonly		
Suppressed switch	26 (56.5%)		
High level viraemia at time of switch	16 (34.8%)		
Low level viraemia at time of switch	4 (8.7%)		
New HIV Diagnosis (following arrival to Ireland)	7 (5.7% of total cohort) 3 (43%) HCV Co-Infection		
Average viral load	2,017,329 copies/mL (Range 3667 – 9,024,197)		
Average CD4 Cell Count	285 cells/μL (Range 28 - 753)		
Opportunistic Infection/AIDS Defining Illness	4 (57%) <table border="1" data-bbox="842 1877 1422 1966"> <tr> <td>PCP</td><td>1</td></tr> </table>	PCP	1
PCP	1		

	HIV Related Malignancy	2
	PML	1
	Cryptococcal Meningitis	1
● Hospital Admission Required	6 (86%)	
● Total Hospital Bed Days Used (during study period)	358 days	
● Admission Cost (total for 358 bed days used) *	453, 944 euro	
HBV/HIV Co-Infection	4 (5.3% of the cohort living with HIV)	
● Treatment	4 (100%) Tenofovir based ART Regimens	
● Viral Load Range	Not detected - 18 IU/mL	
● Liver disease	1 (25%)	
HBV Mono-Infection	9 (7.3% of total cohort)	
● Average Viral Load	4,501 IU/mL (undetectable – 24,611)	
● Liver disease	0	
● Treatment	2 (22%) [Both with Entecavir]	

HIV: Human Immunodeficiency Virus, NNRTI: Non-Nucleoside Reverse Transcriptase Inhibitor, NRTI: Nucleoside Reverse Transcriptase Inhibitor, PI: Protease Inhibitor, ART: Antiretroviral Therapy, HCV: Hepatitis C Virus, SVR: Sustained virological response, HBV: Hepatitis B Virus, TDF: Tenofovir Disoproxil Fumarate

**For the purposes of data analysis if an individual was not tested for one of the blood borne viruses we reviewed their data as mono infection e.g. Individual known to have HCV but not tested for HIV*

was included in the HCV mono-infected group.

**Cost analysis based on the most recently published hospital bed day cost in Ireland (Republic of) of €1,268/day at the time of analysis.*

Hepatitis C

Chronic Hepatitis C (HCV) infection was identified in 69 of 123 individuals (56%). Of these, 37 (53.6%) had HCV mono-infection and 32 (46.4%) had HIV co-infection. Among those with mono-infection, the majority (59.4%) were male (median age 47 years; range 32 - 66), 40.6% were female (median age 47 years; range 25 - 66).

Fifteen individuals (22% of HCV positive cohort) had previously received treatment and achieved sustained virological response (SVR), five (7.2%) had spontaneously cleared infection. Seven patients (10%) relocated to other clinical sites and were not followed up at our centre.

The remaining 42 individuals (60.8%) eligible for direct-acting antiviral (DAA) therapy underwent further assessment. The mean baseline viral load was 3,783,098 IU/mL (range 41,303 – 12,882,593 IU/mL), the mean pre-treatment FibroScan score was 9.9kPa (range 3.4 - 59.5kPa).

At the time of data collection, 38 patients had started treatment and 27 had completed therapy. Nineteen had achieved SVR. Virological cure results were pending for 8 patients although seven had undetectable viral load at end of treatment. Three (8%) patients who initiated treatment were lost to follow-up.

Treatment had not yet commenced for four individuals: one declined treatment due to the long travel distance to the clinic, and one was awaiting HIV viral suppression before commencing DAAs. (Table 3)

Table 3. Hepatitis C Co-Infection & Mono - Infection prevalence, control, management and outcomes

HCV/HIV Co-Infection	32 (46.4% of 69 with HCV)							
● Self-cleared HCV	5 (15.6%)							
● Previously treated HCV w/ SVR	11 (34%)							
● Previous HCV treatment failure	1 (3%)							
● Active untreated HCV	15 (47%)							
Relocated to another clinical site	6 (18.8%)							
Remaining eligible for treatment	10 (31.3%)							
● Genotype	<table><tr><td>Type 1A</td><td>1 (10%)</td></tr><tr><td>Type 1B</td><td>7 (70%)</td></tr><tr><td>Type 3</td><td>2 (20%)</td></tr></table>		Type 1A	1 (10%)	Type 1B	7 (70%)	Type 3	2 (20%)
Type 1A	1 (10%)							
Type 1B	7 (70%)							
Type 3	2 (20%)							
● FibroScan Result (Pre-treatment)	Average 6.16 kPa (Range 3.4 - 10.3)							
● Treatment Commenced	8 (80%)							
● Treatment Course Complete	6 (60%)							
● SVR Achieved	100% of those who have completed							
HCV Mono-Infection	37 (30%)							
● Genotype	Performed for 32 individuals with active untreated HCV							

	Type 3	17 (46%)
	Type 1B	12 (32%)
	Type 1A	1 (2.7%)
	Mixed	1 (2.7%)
● FibroScan (Pre-treatment)	Average 9.9 kPa (3.4 - 59.5)	
● Previous HCV treatment w/ SVR	4 (11%)	
● Previous treatment failure	1 (3%)	
● Treatment Commenced	30 (93.8%)	
● Treatment Course Complete	21 (70%)	
● SVR Achieved	13 (43%)	

Tuberculosis

Tuberculosis (TB) disease was diagnosed in 4 of 123 patients (3.3%): 3 (75%) had pulmonary disease caused by multidrug-resistant strains and one (25%) had extrapulmonary TB.

Among PLWH (n=75), 17 (23%) reported previously treated TB disease. An interferon-gamma release assay (IGRA) was positive in 12 individuals (16%). Of these, 3 (25%) had previously treated TB and one (8.3%) had active TB at the time of testing. Six (50%) had a normal chest x-ray (CXR), while two (16.7%) showed radiographic evidence of previous TB. Two individuals (16.7%) reported prior treatment for TB infection (previously known as latent TB infection [LTBI]).

IGRA testing had not been performed in 20 people living with HIV (16.3%) at the time of data collection. Half of these (10/20) had a history of previous TB disease, limiting the clinical utility of IGRA for identifying TB infection. (*Table 4*)

Table 4. Tuberculosis prevalence, susceptibility, site and management

Previous TB Disease (Amongst those with HIV)	17 (13.8% of total study cohort)
Newly diagnosed TB disease	4 (3.25%) One diagnosed in Ukraine just prior to migration & three diagnosed in Ireland
• Pulmonary	3 (75%)
• Extrapulmonary / Disseminated	1 (25%)
• Multi-Drug Resistant Isolate	4 (100% of active cases) • One provisional at time of data collection
• Hospital bed days	11 (used by 2 individuals) Euro 13,948
• Transferred to specialist centre	3 (75% of active cases) 1 undergoing further work up at present
Latent TB / TB Infection (within HIV cohort)	
• Positive IGRA	12 (15.8%) • 3 (25%) previous TB • 1 (8.3%) active TB at time of test
• Negative	40 (52.6%)
• IGRA not performed	20 (26.3%)
• CXR Performed (in those with positive IGRA)	9 (75%)

TB: Tuberculosis, Multi-Drug Resistant Isolate: Tuberculous isolate which is resistant to at least isoniazid and rifampicin, the two most potent TB drugs.

Service Utilisation & Impact on Service

The most common referral pathway was through a general practitioner (GP) (64/123, 52%), and 70% of patients had a named GP. Other routes included self-referral (6, 4.8%) – through emailing or self-presentation to clinic, hospital services (13, 10.5%), sexual health services (2, 1.6%), and other community services (3, 2.4%); the referral source was not documented for 35 patients (28.5%).

The geographical catchment area served by the clinic reflects the dispersed population of the West of Ireland. At the time of data collection, only 50.4% of patients (62/123) could reach the clinic by public transport within two hours. The mean distance travelled to clinic was 103 km (range 1 KM – 304 km). No statistically significant association was found between access to public transport and missed clinic appointments ($p = 0.64$).

Most patients (115/123, 93.5%) required language interpretation for healthcare communication, only 8 (6.5%) had sufficient English proficiency to complete a basic medical assessment.

Overall, 26 patients (21%) required hospital admission, accounting for 597 inpatient bed days over the 2 year study period. Nine admissions (7.3%) were directly related to the underlying infection. During the study period, the cohort attended 683 outpatient appointments for index infection management. Average monthly clinic attendances by BoTP increased from 9.98 visits in 2022 to 25.75 in 2023. The cohort accounted for 284 rescheduled appointments and 119 missed appointments, equivalent to an average of 10.8 unattended appointments per month in 2024.

Discussion

This study examined the infectious diseases epidemiology and clinical needs of adults displaced from Ukraine and attending our centre during the initial two years of the migration crisis. The sudden increase in patient numbers placed additional pressure on existing infectious disease services and healthcare infrastructure in Ireland. Our findings highlight several barriers to healthcare delivery for this cohort. These were primarily structural - such as the need for interpreter services and limited access to public transport – but also individual, including cultural barriers and the clinical complexity associated with caring for patients affected by war and displacement. We also observed high levels of utilisation of both infectious disease and wider hospital services. These findings indicate a need for targeted investment in migrant health services that reflects the scale and

distribution of need across different regions. Ongoing monitoring of migrant health data is essential to inform policy implementation and improve service delivery for migrant populations.^{16 – 18}

The location of provided temporary accommodation was likely one of the most significant barriers to accessing care. In the west of Ireland, the dispersed population, limited health infrastructure, and restricted public transport options create additional challenges for patients attending specialist services. Enhanced financial support for travel costs may therefore be necessary for some migrant groups. Expanding outreach medical clinics and incorporating virtual consultations could improve access to specialist care for vulnerable migrant populations. A growing body of evidence suggests that these models reduce logistical and socioeconomic barriers, improve continuity of care, and support patient engagement. However, successful implementation requires adequate technological infrastructure, interpreter services, and culturally appropriate care.^{19 - 21}

Access to professional interpreters remains a longstanding challenge within the Irish healthcare system and predates the current migration crisis. A national framework has been published to guide healthcare providers in delivering interpretation services.²² In our cohort, more than 90% of patients required interpreter support during healthcare interactions, reflecting national experience with this population. The introduction of migrant case managers or cultural mediators within primary and specialist care settings may help address both language and cultural barriers, while supporting patient navigation of the health system.

This study focused on a small regional cohort facing considerable structural and social challenges. People displaced from Ukraine in Ireland generally experienced faster access to healthcare than other migrant groups, such as people seeking international protection, highlighting broader inequities in migrant health provision. International organisations such as the World Health Organization (WHO) and the United Nations have emphasised the importance of strengthening public health policy to improve health outcomes for migrants.^{23, 24} In Ireland, the HSE Health Response for Refugees and Applicants Seeking Protection Service Delivery Model aims to improve coordination and resourcing of services across primary and secondary care for migrants populations.²⁵ Our findings support the importance of implementing and adequately resourcing these policy commitments.

Declarations of Conflicts of Interest:

None declared.

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