



A Field Report from War-Torn Remote Villages in South-Eastern Ukraine: Enhancing Healthcare Access Through a Community-Oriented Primary Care Model

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Keywords

EMERGENCY NGO • Community Health Workers • Ukraine • Community oriented primary care • Continuity of care

Summary

The ongoing conflict in Ukraine has severely disrupted health-care infrastructure, displaced medical personnel and restricted access to care, prompting an unprecedented international support. Since October 2023, the non-governmental organization EMERGENCY has conducted a field assessment to identify critical barriers to healthcare delivery in remote villages of Donetsk to inform an effective intervention. The assessment revealed that many health needs, particularly those related to chronic diseases and mental health, were pre-existing but had been exacerbated by the war, resulting in a secondary surge of unmet needs in rural communities facing growing barriers to basic care. In response, a Community Health Worker (CHW)-led intervention was developed to bridge gaps between communities and health services. Locally recruited CHWs conduct door-to-door assessments, monitor treatment adherence for chronic diseases, address mental

health needs, arrange home-based care for bedridden individuals, deliver health education sessions, and facilitate timely referrals in close collaboration with nurse-led clinics. To strengthen resilience, CHWs are trained in basic emergency and disaster preparedness, including life support skills, improving community-level readiness for health emergencies. To address sustainability challenges, the intervention is integrated into Ukraine's primary care network, and provides CHWs with ongoing training and compensation through regular contracts. Aligned with national health priorities and the Health Cluster's strategy, the model targets marginalized groups, engages communities, and strengthens local health systems, ensuring efficient use of resources and continuity of care. This report outlines a scalable, context-sensitive approach to enhancing healthcare access in conflict settings, with relevance for other humanitarian contexts.

Introduction

Since Russia's full-scale invasion of Ukraine in February 2022, the war has caused significant human losses, with over 12,000 civilians, including around 600 children, killed by February 2025, [1] and almost 4 million people internally displaced (IDPs) [2]. Around 6 million remain in violence-affected areas, with another 6 million having fled the country, and an estimated 14.6 million requiring humanitarian assistance in 2024 [3].

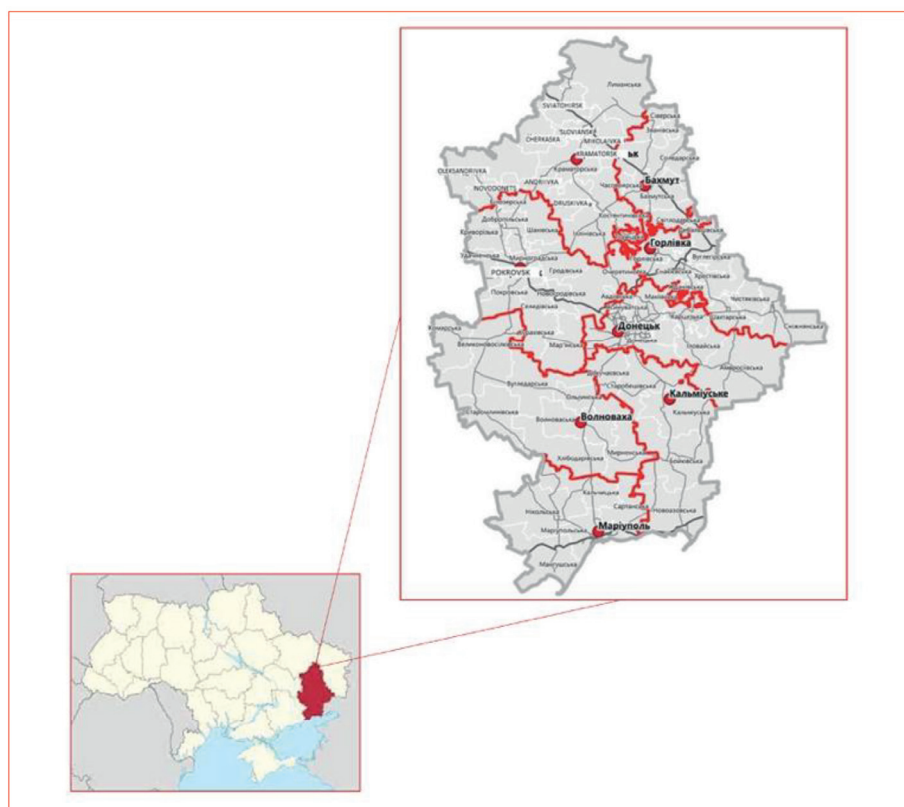
Healthcare access in South-Eastern Ukraine has been severely compromised by insecurity, displacement of civilians and healthcare workers (HCWs), and disrupted supply chains [4]. Attacks on health facilities further threaten access. Since the escalation, 2,184 episodes have been reported, resulting in 204 deaths, 696 injuries, and major service disruptions [5].

In Donetsk oblast, 46% of health facilities are non- or partially functional, over half are damaged, and 50% report equipment losses [6].

International aid has mobilized on an unprecedented scale, making Ukraine the largest recipient of assistance from any single country in a year [7]. By November 2024, 645 organizations had reached 8 million people with

shelter, food, water and sanitation, and healthcare [8].

In October 2023, the international non-governmental organization (NGO) EMERGENCY, [8] building on prior support [9] for Ukrainian refugees in Moldova, launched a needs and assets assessment in Donetsk (Fig. 1), twenty months after the full-scale invasion. The assessment aimed to identify needs and resources in affected areas providing an evidence base for effective assistance. While there is extensive literature on health system disruptions in conflict, little is documented on concrete models of health delivery during protracted war, particularly in Ukraine. International humanitarian actors increasingly emphasize the importance of holistic, person-centred approaches through multisectoral integrated strategies as essential to reach the invisibles and the most vulnerable [5], who continue to bear the brunt of war-related health system breakdowns. To address this gap, an interdisciplinary assessment was undertaken, informed by the Multi-Sector Initial Rapid Assessment (MIRA) framework [10], commonly used in humanitarian contexts, to capture evolving health needs and service availability nearly two years into the conflict. This report presents the findings and outlines a strategic response relevant to similar humanitarian contexts.

Fig. 1. Surveyed area during the assessment: Donetsk oblast, Kramatorsk raion.

Methods

The assessment was conducted by an interdisciplinary team, comprising a coordinator, two HCWs, a logistician, and a cultural mediator, all with prior experience in humanitarian assessments. The MIRA framework was used [10]. Typically employed in sudden-onset disasters, it was adapted to evaluate emerging health needs nearly two years into the war, enabling timely input for strategic planning and decision-making.

Four main data sources were used:

1. Document review: reports from national authorities and international organizations (*e.g.*, Health Cluster Bulletins [5, 11]; Health Context and Response Update [12]) were systematically reviewed to contextualize facility-level findings and triangulate local perspectives with secondary data;
2. Facility inspections: visual inspections were conducted in the main secondary hospitals and primary care facilities across the oblast (see map in Fig. 1); a structured MIRA-checklist was used to record functionality of infrastructure, availability of medicines and equipment, staffing, and referral capacity;
3. Key informant consultations: semi-structured consultations were carried out with representatives from each clinic and three members of local health department;
4. Community perspectives: interviews were conducted with 19 community representatives and local

residents across 10 settlements, purposively selected to reflect both urban and rural contexts as well as areas of high and low accessibility. A brief interview guide was used, focusing on perceived barriers to care, priority health needs, and coping strategies.

Notes from facility inspections, consultations, and community interviews were collated and synthesized thematically. An initial set of categories was derived from the domains of the MIRA framework (*e.g.*, service availability, access barriers), and emergent themes were added inductively from the data. Findings from the different sources were then triangulated to identify convergent issues and cross-validate emerging priorities. Results are presented according to the MIRA domains that guided the assessment.

The study was conducted according to the principles enunciated in the Declaration of Helsinki, and approved by the Independent Institutional Review Board of EMERGENCY NGO (Protocol 7/2025, May 2025).

Results

The assessment results are organized according to the MIRA framework, [10] with a visual summary presented in Figure 2.

CRISIS IMPACT

The war has caused extensive destruction of facilities and roads, displaced civilians and HCWs, and severely

Fig. 2. MIRA framework.

CRISIS IMPACT			OPERATIONAL ENVIRONMENT			
Scope and scale of the crisis		Conditions of affected populations	Capacities and response		Humanitarian access	
Primary Effects: conflict, insecurity, destruction of health facilities and roads	Secondary Effects: displacement, lack of HCWs, funding issues, price increases close to the war-front	Underlying factors: pre-existing barriers to access due to health reforms; remoteness; lack of transportations, destruction of roads	Health status: Disruption of care for NCDs; acute exacerbation; Low vaccination rates; low health literacy and perception	Degree of accessibility: low access of remote communities to health services; low access for bed-ridden and PwDs (NFI); increased prices for drugs	Physical disruption of HF : 20% hospitals destroyed/occupied by military, better conditions in larger towns and with more HR	Discrepancy between opinion from higher authorities and local representatives
			Capacities: main hospital and PHC centres of larger towns are functional	Registration issues with PwD (no access to devices, consumables, only Out-of-pocket)	Availability of medicines/devices in larger central towns. Less availability in rural villages	Lower coverage for specialized services: psychosocial; people with disabilities.
			Reliance on social networking as a coping mechanism for the absence of general services		Humanitarian NGOs in the area: primary care services + MHPSS. No integration of existing Health Information System. Duplication	
					Humanitarian NGOs: access depends on endorsement of local PHC directors (administrative), distance to war-front	
					No anticipatory care , few health promotion activities	
Humanitarian profile		Severity of the crisis	Gaps in response		Operational constraints	
• ≈20% of population • Rural communities • People with disabilities		• Lack of access to PHC services for hard-to-reach areas	• Lack of community engagement • Lack of medicines and devices • Few M&E strategies in place		• Distance to war-front • HR (peripheral level) • Duplication	
Priority Humanitarian Needs: 1) lack of access for marginalized communities (hard-to-reach areas; areas close to the war front; PwDs); 2) People with chronic diseases; 3) Low community engagement and low perceived needs; 4) Barriers to access to medicines and NFIs; 4) Duplication of services/Lack of coverage in certain areas; 5) Barriers to access to specific services (e.g., screening, MPHSS)						

limited transportation in the surveyed area. Larger cities show relative resilience, with hospitals and primary care facilities often appearing well-maintained, some even freshly painted. However, patients' waiting areas are often empty.

In contrast, smaller villages and rural frontline communities face greater hardships. Many local nurses cannot access their health facilities, as many are occupied by military forces. Remaining health posts are rudimentary, poorly equipped, or relocated to administrative buildings. Village populations have declined dramatically, with 25-50% of residents fleeing, and even higher percentages in active combat zones. Those left behind are predominantly elderly individuals and persons with disabilities (PwDs), who represent approximately 60% of the population. A sense of abandonment is palpable as residents urge humanitarians 'not to forget them'. They struggle with basic tasks, and face major barriers in reaching healthcare or obtaining medications. Since the war began, many rural pharmacies have closed, and those still operating often charge higher prices. These challenges are not entirely new, as they stem in part from an incomplete health reform program initiated in 2010 and intended for completion by 2020. This reform closed health facilities in small villages unless supported by local administrations. [13] The war has worsened these long-standing barriers, compounding limited access with staffing shortages, higher medication costs, reduced financial resources, disrupted transport, deteriorating infrastructure, and insecurity. [14]

CONDITIONS OF AFFECTED POPULATIONS

Before the war, Ukraine already faced significant health challenges, including an aging population, [15] a high prevalence of non-communicable diseases, particularly cardiovascular conditions, [16] and elevated burdens of HIV and tuberculosis (TB) [17, 18]. Low health literacy contributed to low immunization rates, especially among children [19-22]. The war has severely disrupted access to medications, diagnostic services, and preventive care, worsening health outcomes for older adults, PwDs, individuals with chronic conditions, and IDPs [23]. Hospital directors reported that the breakdown of the primary care's gatekeeping function and the disrupted continuity of treatment for chronic illnesses have led to more frequent and severe exacerbations at hospitals. Additionally, HIV and TB case-finding, diagnosis and treatment continuity have also been interrupted in many surveyed areas, potentially leaving several cases undiagnosed and untreated [24]. Mental health disorders have surged, yet services remain limited, and stigma persists [25]. In surveyed rural areas, no basic mental health service was available. Some local NGOs offered online consultations, but these efforts are undermined by inadequate spaces, unreliable internet connectivity and difficulties in using digital tools at the community level. Among those affected by the war, an estimated 22% experience conditions ranging from mild anxiety or depression to psychosis, while nearly one in ten lives with a moderate or severe mental health condition [26].

OPERATIONAL ENVIRONMENT: CAPACITIES AND RESPONSE

A clear discrepancy emerged between statements from high-level authorities and the accounts of village leaders and local health staff regarding the situation in peripheral areas. As the team moved closer to the front lines, it became evident that several needs remain unmet at the community level, despite significant humanitarian funding and response efforts since the war's onset. Many front-line areas are critically underserved, with interviewees reporting that around 50% of residents in hard-to-reach locations cannot access even the most basic service. Community-based healthcare is largely absent, restricting care to those able to travel, sometimes up to 20 kilometers, on unpaved road to health facilities. Consequently, these communities remain disengaged, with persistently low perceived health needs. Additionally, no immunization program is available in these areas, increasing the risk of vaccine-preventable disease outbreaks. The departure of skilled birth attendants has created significant gaps in maternal health services. However, few women of childbearing age remain in these communities. Instead, older adults, PwDs, and those in isolated villages are often left without adequate support. IDPs often face administrative barriers and may not register in their new locations, limiting their access to basic care, including essential medications and routine vaccinations.

OPERATIONAL ENVIRONMENT: HUMANITARIAN ACCESS

The ongoing war has created a precarious security environment, placing both staff and beneficiaries at risk and disrupting vital supply lines. This has deterred many international NGOs from operating near the frontline. EMERGENCY NGO maintains a 25 km safety buffer zone to allow time for evacuation if hostilities escalate. Access is further hampered by poor road conditions, long distances between villages, and heavy winter snowfall, which can isolate entire communities. Humanitarian operations also depend on local authority endorsement. These authorities function within a structured national health system with their own priorities, making negotiation and collaboration essential for uninterrupted aid delivery. Additional challenges include bureaucratic hurdles, such as visa and registration requirements, which can delay operations and increase complexity. It was also difficult to ascertain the number and capacity of humanitarian actors in rural areas, complicating coordination, and often resulting in service gaps or duplication. Despite these challenges, national and few international NGOs remain active in these areas. Some deliver medications to remote communities, while others provide basic care services through mobile teams. However, NGO health records are generally not integrated into Ukraine's national system, causing treatments provided in remote areas to go unrecorded in patient histories.

Discussion

The assessment revealed that while primary care centers in Donetsk's larger cities remain functional and well-staffed, remote villages are disproportionately affected. Services in these areas declined following national health reform, and the ongoing war has further eroded access. Older adults, PwDs, and rural residents face significant barriers to care, especially for chronic conditions like hypertension and diabetes. Mental health needs are often unmet, and disrupted screening efforts have raised the risk of undiagnosed cases of HIV and TB, and other infectious diseases. These findings align with earlier reports on the topic [26, 27].

To address these challenges, EMERGENCY launched an intervention to improve access to public primary care in war-affected villages, with a focus on vulnerable groups. The project is rooted in a community-based model that brings services closer to people through a network of trained local actors and flexible service delivery mechanisms. The organization also supports local HCWs with essential equipment, and implements semi-mobile clinics to better serve these remote communities. Community Health Workers (CHWs), recruited locally, play a central role. They conduct door-to-door health assessments, monitor adherence to chronic disease treatments, address mental health needs, arrange home-based care for bedridden individuals, and facilitate referrals. CHWs also provide health education, informal counseling, and guidance on hygiene and disaster preparedness. Their ongoing training, formal contracts, and compensation are key to ensure service quality and long-term sustainability.

Integrated into Ukraine's primary care system, CHWs collaborate with nurse-led clinics to organize screenings, distribute medicines and non-food-items, and ensure that only urgent cases are referred to higher-level care. A robust data system tracks intervention impact, including: (1) case management and follow-up outcomes; (2) CHW's effectiveness in reconnecting individuals to care; and (3) referral patterns and avoidable hospitalizations. This approach builds on existing evidence of CHW effectiveness in peacetime [28, 29], conflict [30-32], and post-conflict settings [33]. By leveraging local trust and social networks, CHWs advocate for vulnerable populations and improve access to care, [34] ultimately enhancing both physical and mental well-being in remote communities that might otherwise remain isolated due to conflict and insufficient infrastructure. This approach aligns with the principles of Community-Oriented Primary Care, conceptualized in South Africa in the 1960s, which blends primary care and public health strategies through an anticipatory approach [35, 36]. Extensive evidence affirms that a CHW-led model of care is low-cost, scalable, and effective in settings where conflict hampers formal services [37, 38]. The intervention also aligns with Health Cluster's priorities [12], targeting marginalized groups, engaging local actors, and integrating with existing health systems to ensure sustainability and avoid parallel systems.

Implementing such a model amid conflict carries inherent challenges. Security concerns may limit access to communities, while displacement may weaken the trust required for effective service delivery [39]. Logistical barriers, including disrupted communication and resource shortages, further reduce CHWs' capacity. In many settings, CHWs lack formal recognition, compensation, and training, all factors that contribute to low motivation and high attrition rates [39]. To mitigate this, the intervention ensures CHWs receive transportation support, ongoing training, and formal contracts with fair compensation. Sustainability remains a concern. CHWs are not yet fully embedded in Ukraine's health system, raising questions about long-term integration. Still, their training allows for future adaptation, and some organizations are advocating for their permanent inclusion globally [40].

This report highlights the potential of CHWs to strengthen community-based healthcare in conflict settings, offering critical insights for designing resilient interventions. By involving local stakeholders in program design, the intervention promotes ownership and long-term sustainability [41,42]. This community-centered approach ensures continuity of care, lowers barriers to access, and actively engages war-affected villages in co-managing their health. It also aligns with broader efforts to 'build back better'. By prioritizing primary care, Ukraine can restore and enhance its healthcare system, leveraging the central role of CHWs to ensure resilience and equity in future health services [43].

STRENGTHS AND LIMITATIONS

This report offers firsthand insights from areas near the frontline, collected by a multidisciplinary team. It gives voice to affected communities, and documents their experience during the war. Conducted in a priority zone designated by the regional health authority, the assessment allowed for focused, context-specific data collection. While valuable, the findings reflect local conditions at the time and are not generalizable to other regions.

Conclusion

The ongoing war and resulting health challenges make Donetsk an appropriate setting for a robust primary care intervention. Strengthening access to essential services, supporting chronic disease management, and promoting early detection of infectious diseases can improve population health and autonomy. Anchored in collaboration with the public health system and driven by CHWs, this model offers a scalable, sustainable framework for similar interventions in conflict-affected settings.

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Conflict of Interest statement

None.

Authors' contributions

DLS and EC contributed equally to the conceptualization, data collection, and initial drafting of the report. MP provided clinical oversight and contributed to critical report revisions. AM and GB supported data acquisition and contributed to contextual analysis. VI, SC, DS, and DG contributed to field coordination, stakeholder engagement and manuscript editing. ED. participated in data organization and contributed to reviewing and editing the report. ALC led the overall report design, supervised the assessment process, and contributed to data interpretation, writing, and final approval of the submitted version. All authors have substantially contributed to the work, revised it, approved the final version, and agreed to be accountable for all aspects of the work.

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