

- 10 WHO. Essential medicines in palliative care (prepared by the International Association for Hospice & Palliative Care). 2013. https://www.who.int/selection_medicines/committees/expert/19/applications/PalliativeCare_8_A_R.pdf (accessed March 13, 2022).
- 11 Powell RA, Schwartz L, Nouvet E, et al. Palliative care in humanitarian crises: always something to offer. *Lancet* 2017; **389**: 1498–99.
- 12 Sallnow L, Smith R, Ahmedzai SH, et al. Report of the Lancet Commission on the Value of Death: bringing death back into life. *Lancet* 2022; **399**: 837–84.
- 13 Knaul FM, Farmer PE, Krakauer EL, et al. Alleviating the access abyss in palliative care and pain relief—an imperative of universal health coverage: the Lancet Commission report. *Lancet* 2018; **391**: 1391–454.
- 14 UN Refugee Agency. Operational data portal: Ukraine refugee situation. 2022. <https://data2.unhcr.org/en/situations/ukraine> (accessed March 16, 2022).
- 15 Reuters. COVID-19 Tracker. Ukraine. 2022. <https://graphics.reuters.com/world-coronavirus-tracker-and-maps/countries-and-territories/ukraine/> (accessed March 13, 2022).
- 16 ehospice Worldwide Hospice Palliative Care Alliance. The Palliative Care in Humanitarian Aid Situations and Emergencies. PallCHASE statement on the humanitarian crisis in Ukraine. 2022. https://ehospice.com/international_posts/pallchase-statement-on-the-humanitarian-crisis-in-ukraine/ (accessed March 13, 2022).
- 17 Farmer PE. Pathologies of power: health, human rights, and the new war on the poor. Berkeley, CA: University of California Press, 2003.
- 18 Farge E. Nearly 400 civilians killed in Afghanistan since Taliban takeover, UN says. Reuters, March 8, 2022. <https://www.reuters.com/world/asia-pacific/nearly-400-civilians-killed-afghanistan-since-taliban-takeover-un-says-2022-03-07/> (accessed March 13, 2022).
- 19 Bone RM. Cameroon's forgotten civil war is getting worse. Foreign Policy, Dec 2, 2021. <https://foreignpolicy.com/2021/12/02/cameroon-civil-war-worse-nigeria-ambazonia-anglophone-crisis/> (accessed March 13, 2022).
- 20 Council on Foreign Relations. Global Conflict Tracker. Violence in the Democratic Republic of Congo. 2022. <https://www.cfr.org/global-conflict-tracker/conflict/violence-democratic-republic-congo> (accessed March 13, 2022).
- 21 Refugees International. Advocacy Letter. Memo: impacts of the U.S. and Mexican migration enforcement on migrant and refugee rights in Mexico. 2021. https://www.refugeesinternational.org/reports/2021/9/22/memo-impacts-of-us-and-mexican-migration-enforcement-on-migrant-and-refugee-rights-in-mexico?gclid=Cj0KCQiAybaRBhDtARIsAIEG3kmfhf2NP8D6Yr1z1WRxgf9Jo2MnNGfCndiWPIOM7Ax6LQWK1DhRTSAaAv0nEALw_wcB (accessed March 13, 2022).
- 22 Devi S. 11 years of war in Syria. *Lancet* 2022; **399**: 1037–38.
- 23 Council on Foreign Relations. Global Conflict Tracker. Instability in Venezuela. 2022. <https://www.cfr.org/global-conflict-tracker/conflict/instability-venezuela> (accessed March 13, 2022).
- 24 Grant L, Khan F. The precariousness of balancing life and death. *Lancet* 2022; **399**: 775–77.
- 25 The Lancet. Ukraine's humanitarian disaster: priorities for health. *Lancet* 2022; **399**: 1023.
- 26 Human Rights Watch. Uncontrolled pain: Ukraine's obligation to ensure evidence-based palliative care. 2011. <https://www.hrw.org/report/2011/05/12/uncontrolled-pain/ukraines-obligation-ensure-evidence-based-palliative-care> (accessed March 13, 2022).
- 27 International Narcotics Control Board. Statement by Jagjit Padavia, President, International Narcotics Control Board (INCB). Sixty-fifth session of the Commission on Narcotic Drugs, joint call for action by the United Nations and the Commission on Narcotic Drugs: scaling up the implementation of international drug policy commitments on improving availability of and access to controlled substances for medical and scientific purposes. March 14, 2022. <https://www.incb.org/incb/en/news/speeches/2022/incb-presidents-statement-at-the-sixty-fifth-session-of-the-commission-on-narcotic-drugs-joint-call-for-action-by-the-united-nations-and-the-commission-on-narcotic-drugs.html> (accessed March 17, 2022).
- 28 UN General Assembly. 69/283. Sendai Framework for Disaster Risk Reduction. 2015. <https://www.preventionweb.net/files/resolutions/N1516716.pdf> (accessed March 13, 2022).



Health impacts of the Russian invasion in Ukraine: need for global health action



More than 1 month since Russia began its illegal invasion of Ukraine the tragic human suffering and loss of life are clear. Each day brings more death, injuries, and stories of people fighting for their lives. The implications of the war extend beyond the military and civilian casualties. There are geopolitical, financial, infrastructural, and health impacts. And the effects of this war, particularly on health and health care within and outside Ukraine, will continue long after violent conflict ends.

The war has brought immense pressures and demands for the Ukrainian health sector. There have been 3039 civilian casualties recorded, including 104 children and 1075 adults killed as of March 28, 2022.¹ The risk of infectious disease outbreaks, particularly COVID-19, cholera, polio, tuberculosis, and diarrhoeal diseases, is rising as people are forced to shelter in overcrowded spaces with inadequate or no access to water and sanitation facilities.^{2,3} The UN High Commissioner for Refugees stated the war has forced 10 million Ukrainians

to flee their homes,⁴ of whom about 6·4 million³ are displaced internally and in desperate need of urgent aid, treatment for recent injuries and illness, and continued care for chronic conditions. Food shortages are arising because of damage to agricultural infrastructure and disruptions in food supply chains.³ The risks of mental health and psychosocial deterioration are growing as people face traumatic events and stress from acute conflict.³ Attacks on and around maternity hospitals mean many women do not have access to the obstetric care they need, increasing the risks of maternal and neonatal morbidity and mortality.^{2,3,5} It is estimated that more than 2 million children younger than 5 years and pregnant and breastfeeding women in Ukraine are in need of nutrition assistance.³ There could also be health risks related to potential Russian use of nuclear, chemical, or biological weapons against Ukrainian civilians.⁶

Meanwhile, Ukraine's health and care systems are operating at reduced capacity. As of March 24, 2022,

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there have been 64 attacks on health-care assets verified by WHO and more than 300 health-care facilities are located in areas where there are active hostilities;³ health-care workers are among those who have been injured, killed, or had to flee their homes,³ which leaves medical staff shortages; and medical supplies are limited as delivery patterns are interrupted. Furthermore, this crisis exacerbates existing health concerns in the region.⁷ COVID-19 has stressed the health system for more than 2 years;⁸ the country has a high prevalence of HIV among the general population (0.9–1.0%);⁹ and Ukraine has been dealing with a polio outbreak since October, 2021.⁸ From Feb 23 to March 23, 2022, the number of beds available for COVID-19 patients in Ukraine decreased by 27% and the number of beds occupied by COVID-19 patients decreased by 83% nationally,³ reflecting the conflict's intense impact on hospital access and data reporting.³ Further, many of those who have been living with HIV and chronic illnesses will only have been able to take a limited supply of their life-saving medication with them as they fled their homes, which means more health issues will arise as they run out.

The health impacts of this war go beyond the borders of Ukraine. More than 3 million refugees from Ukraine have fled to nearby countries in Europe and the crisis is overstressing human and technical resources and health systems in these neighbouring countries. The health systems in countries such as Moldova and Romania will need to care for those who have fled Ukraine with physical injuries and mental trauma and people with chronic conditions, whose care has been disrupted because of the conflict.³ The risks of human trafficking and sexual and gender-based violence are also rising as more women and children leave their homes.³ Furthermore, as Ukraine is one of the world's largest exporters of grain, the war has externalities on global food production. Food shortages resulting from the war are expected to have the worst impacts on several countries in the Middle East and Africa.¹⁰ Threats of a global financial crisis that could exacerbate the economic fallout from the COVID-19 pandemic are also growing as the Russian invasion continues. As occurred with COVID-19, the worst economic impacts are likely to fall on people who are already struggling the most and increase inequalities.

The global community must continue to support efforts to end the current crisis¹¹ and anticipate and prepare for the effects of this war on Ukraine, its

neighbours, and other countries around the world. The war could have ripple effects on progress towards the Sustainable Development Goals globally, with particular impacts on food security, poverty, nutrition, and social unrest.¹² At least three new major global programmes are needed to support Ukraine in rebuilding its health system, including rebuilding war-torn medical facilities and the health workforce; to support the countries surrounding Ukraine which have taken in a huge number of refugees; and to support all those countries that are most affected by food shortages triggered by the halt in grain production. Crude estimates suggest that for every direct war casualty, there are even more people killed indirectly because of the health impacts of war,^{13,14} and we know that this illegal invasion will continue to have effects on health and care systems around the world long after the fighting stops in Ukraine.

We declare no competing interests.

*Olha Zaliska, Oleksandra Oleschuk, Rebecca Forman,
Elias Mossialos

e.a.mossialos@lse.ac.uk

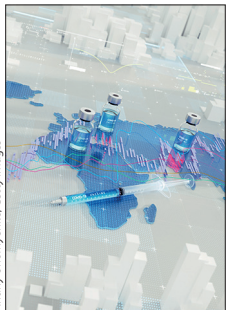
Department of Management and Economics of Pharmacy, Medical Technology and Pharmacoeconomics, Danylo Halytsky Lviv National Medical University, Lviv, Ukraine (OZ); Department of Pharmacology with Clinical Pharmacology, Horbachevsky Ternopil National Medical University, Ternopil, Ukraine (OO); Department of Health Policy, London School of Economics and Political Science, London WC2A 2AE, UK (RF, EM); Institute of Global Health Innovation, Imperial College London, London, UK (EM)

- 1 UN Office of the High Commissioner for Human Rights. Ukraine: civilian casualty update 29 March 2022. <https://www.ohchr.org/en/news/2022/03/ukraine-civilian-casualty-update-29-march-2022> (accessed March 30, 2022).
- 2 WHO. Health Cluster Ukraine. Ukraine: Public Health Situation Analysis (PHSA)—short-form. March 3, 2022. <https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/ukraine-phsa-shortform-030322.pdf> (accessed March 29, 2022).
- 3 WHO Regional Office for Europe. Emergency in Ukraine: external situation report #4. March 24, 2022. <https://www.who.int/publications/i/item/emergency-in-ukraine-external-situation-report-4-published-24-march-2022-reporting-period-17-23-march-2022> (accessed March 27, 2022).
- 4 Provan S. Ukraine war has forced 10mn people to flee their homes, says UN agency. *The Financial Times*, March 21, 2022. <https://www.ft.com/content/3a9dc1bb-e0c5-47b8-8533-2343c165976a> (accessed March 27, 2022).
- 5 Ukrinform. Over 15,000 babies born in Ukraine during full-scale Russia's invasion. March 22, 2022. <https://www.ukrinform.net/rubric-society/3436643-over-15000-babies-born-in-ukraine-during-fullscale-russias-invasion.html> (accessed March 27, 2022).
- 6 Yamey G, Arya AN, Bhutta ZA, et al. A call for an immediate ceasefire and peaceful end to the Russian aggression against Ukraine. *Lancet* 2022; published online March 24. [https://doi.org/10.1016/S0140-6736\(22\)00571-2](https://doi.org/10.1016/S0140-6736(22)00571-2).
- 7 Roborgh S, Coutts AP, Chellew P, Novykov V, Sullivan R. Conflict in Ukraine undermines an already challenged health system. *Lancet* 2022; published online March 11. [https://doi.org/10.1016/S0140-6736\(22\)00485-8](https://doi.org/10.1016/S0140-6736(22)00485-8).
- 8 McKee M, Murphy A. Russia invades Ukraine again: how can the health community respond? *BMJ* 2022; **376**: 0548.
- 9 UNAIDS. Global AIDS Monitoring 2019: Ukraine. 2020. https://www.unaids.org/sites/default/files/country/documents/UKR_2020_countryreport.pdf (accessed March 27, 2022).

- 10 International Fund for Agricultural Development. Impacts of Ukraine conflict on food security already being felt in the Near East North Africa region and will quickly spread, warns IFAD. March 17, 2022. <https://reliefweb.int/report/world/impacts-ukraine-conflict-food-security-already-being-felt-near-east-north-africa-region> (accessed March 29, 2022).
- 11 Southall DP, MacDonald R, Kostjuk O, Shcherbakov V, Deierl A. The UN must provide secure medical and humanitarian assistance in Ukraine. *Lancet* 2022; published online March 17. [https://doi.org/10.1016/S0140-6736\(22\)00526-8](https://doi.org/10.1016/S0140-6736(22)00526-8).
- 12 UN Sustainable Development Group. UN teams around the world brace up to support authorities to tackle impacts of Ukraine crisis. March 18, 2022. <https://unsdg.un.org/latest/stories/un-teams-around-world-brace-support-authorities-tackle-impacts-ukraine-crisis> (accessed March 29, 2022).
- 13 Sheather J. As Russian troops cross into Ukraine, we need to remind ourselves of the impact of war on health. *BMJ* 2022; **376**: o499.
- 14 Murray CJ, King G, Lopez AD, Tomijima N, Krug EG. Armed conflict as a public health problem. *BMJ* 2002; **324**: 346–49.



Vaccine apartheid: global cooperation and equity



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Widening gaps in global vaccine equity have led to a two-track pandemic with booster COVID-19 vaccinations proliferating in high-income countries (HICs) and first doses not yet reaching all populations in low-income countries (LICs). Early in the pandemic, the COVID-19 Vaccines Global Access Facility (COVAX) promised equitable vaccine supplies for all countries. However, with insufficient funds and donations, COVAX has faltered, failing to meet even half of its 2021 target of delivering 2 billion doses.¹ An open letter to G20 leaders in October, 2021 highlighted how 133 doses per 100 people have been given in HICs compared with four doses per 100 people in LICs.² The WHO Director-General has called the divide a “vaccine apartheid”,³ speaking beyond the phrase “vaccine inequity” to emphasise the scope of this moral failure and make explicit comparisons to the South African system of institutionalised racial segregation. Unabated SARS-CoV-2 transmission in LICs offers fertile soil for new variants to emerge, and WHO has argued that deracinating the roots of the pandemic will require us to vaccinate the world.⁴ But how do we achieve global vaccination?

The present challenge is the zero-sum nature of vaccination where, given limited supply, every booster shot HICs purchase is a lost first or second dose for LICs.⁵ Under the institutional duty to rescue, states hold obligations to specific populations, setting defined scope and force (ie, the breadth of cases to which a duty applies and the requisite demands).⁶ The first obligation of all countries is to their own population, so HICs have understandably prioritised booster shots to citizens over vaccine donation to non-citizens. Despite this zero-sum thinking, some vaccine philanthropy has emerged, with the USA pledging to donate 1.2 billion doses, although only 400 million have been delivered as of Feb 18, 2022.⁷ Similarly, the UK pledged to donate 100 million doses

to COVAX but has only donated half of that amount to date.⁸ WHO membership, international treaties, such as the Doha Declaration and Food Assistance Convention, and other diplomatic agreements can extend HICs’ duty to rescue but typically only in a constrained way. Tina Rulli and Joseph Millum have highlighted that “despite the great amount of need in the world, institutions have primary responsibility to address the needs of their own constituents”.⁶ As such, it is perhaps unrealistic that vaccine philanthropy alone will meet the WHO plan to vaccinate 70% of the world by mid-2022.^{9,10}

In *The Fallacy of Philanthropy*,¹¹ Paul Gombert argues that traditional approaches like “feed the hungry” distract from actionable solutions to address the unique challenges of chronic social problems such as poverty. If the underlying forces that create hunger are not prevented, then addressing only the downstream effects is, Gombert suggests, “like trying to bail the boat without fixing the leak”.¹¹ HICs donating COVID-19 vaccine doses to LICs is commendable, but represent an inefficient, short-term amelioration rather than a sustainable long-term solution. Addressing the root causes of vaccine inequity will require more systemic changes because alternatives such as philanthropy leave the forces enforcing such inequities intact and deflect attention away from them. Gombert details how capitalism has sustained hunger and suggests a revolutionary political response to end poverty.¹¹ While anti-capitalism might not be wholly desirable given the impressive investment that produced COVID-19 vaccines, a more structural approach than vaccine philanthropy would help achieve greater global cooperation and equity.

We suggest that an effective and sustainable approach must include passage of the Trade-Related Aspects of Intellectual Property Rights (TRIPS) waiver by the World Trade Organization (WTO) so that mRNA vaccine