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Maleficent Comrades: War in Ukraine and COVID-19

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Abstract

Infectious diseases and war are maleficent comrades. This reality applies equally well to the war in Ukraine and the current coronavirus disease 2019 (COVID-19) pandemic. Europe is facing a huge refugee crisis and potentially the conflict could worsen the COVID-19 pandemic. Initially, 2 major countries of concern are Poland, which has taken the majority of refugees, and Moldova, which has taken a very large number of refugees on a per capita basis. However, the concern extends to the rest of Europe because of the mobility of refugees beyond the first country they enter. Vaccinating, infection control, and boosting refugees should be a priority. However, complete prevention of COVID-19 is very complex because of other issues related to the success of prevention.

History shows that war and infectious diseases are a deadly combination, sometimes as adversaries and sometimes as partners; but regardless of the disease, this combination often contributes to suffering and death for civilians. A recent analysis of 73 publications shows that wars clearly increase the impact of infectious disease. In this review, it was also found that current decision-making management systems are insufficient in these conflicts. Infectious diseases are increased by poor hygiene, the destruction of health-care infrastructure, and migration. Not only is there a concern but also supporting data that the current war in Ukraine exacerbated the coronavirus disease 2019 (COVID-19) pandemic, increased cases of HIV, and promoted a polio outbreak.^{2,3}

Middle East Conflict and the COVID-19 Pandemic

External factors, such as war and disasters, that contribute to the success of the viral invader, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), should be considered in combatting the pandemic. Epidemiological data from conflicts in Libya, Syria, and Yemen have shown a direct relationship between the increase in violence and the consequent steep upsurge of COVID-19 cases. Two time periods were analyzed in these cases in detail: March to August 2020 and September to December 2020. The violence began in the first time period, and there were 5 to 53 COVID-19 related cases reported/day. In the latter period, there was a significant decrease in violence when compared with that in the first period, but the number of COVID-19 cases increased to approximately 500 cases reported/day. The conclusion for this increase of cases was that the armed conflict had contributed to the spreading of the disease but remained hidden during the conflict. In fact, it has been noted that, due to restricted health-care capacity in the conflict zone in Syria, it was very difficult to follow-up on the spread of SARS-CoV-2 during the conflict.

War in Ukraine and the COVID-19 Pandemic

The ongoing COVID-19 pandemic is still a major health issue in Europe, and it certainly will impact health conditions disproportionately because of the war in Ukraine. Ukraine is one of the European countries that has not achieved an effective vaccination program among its citizens. As of February 19, 2022, a total of 31,455,954 vaccine doses have been administered in Ukraine.⁶ Unfortunately, the proportion of the fully vaccinated pre-war population of the total population, ie, 41.6 million people in Ukraine, was only approximately 35% by the end of February 2022.⁶ This proportion of fully vaccinated Ukrainians is certainly too low to reduce the number of transmissions of the SARS-CoV-2 virus, and it leaves Ukraine far from the current targets of the COVID-19 vaccine programs.^{7,8} In Europe, the pandemic is fluctuating and it remains to be seen how the current war conflict is affecting the situation in Ukraine, in the entirety of Europe, and potentially the rest of the world.⁹

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Refugees and COVID-19

A recent World Health Organization (WHO) European Region report on refugees and their health that predates the current pandemic highlighted the issues related to refugees who have not received vaccinations and are exposed to poor living conditions. Because suboptimal vaccination coverage is likely to lead to disease outbreaks, according to this report the biggest concern applies to children who have not been vaccinated. In the analysis of the Program for Monitoring Emerging Diseases archive reports covering the years 1996 to 2016, the number of outbreaks increased during this time period. 11

Currently (September 7, 2022), there are approximately 7.2 million refugees from Ukraine in several European countries, and the above concerns regarding vaccination, disease outbreak, and health conditions apply to these refugees and their host countries.

The UN Refugee Agency guidance "Public Health during COVID-19" reminds us that the vaccination roll-out is but 1 step of the extensive support measures required for primary health care. These support measures include (1) co-operation with governments; (2) distributing essential medications and supplies; (3) increasing access to water, sanitation, and hygiene; (4) increasing the capacity of health-care workers; (5) providing mental and psychosocial support; (6) communicating with communities; and (7) maintaining a minimum of continuity services.

The risk of SARS-CoV-2 infection will increase in the current refugee camps, particularly in those with low vaccination coverage populations. In the recent cross-sectional study performed in the Dagahaley refugee camp in Kenya, the seroprevalence of SARS-CoV-2 antibodies was estimated among individuals (n=587) who were seeking care and among all household members (n=619) of the community of health workers working in the camp. ¹³ In this study, the number of infected people was estimated to be 67 times higher outside the camps than the number of reported cases, and the individuals over 50 years of age were particularly vulnerable. Among the refugees, an additional health issue was mental health problems associated with the COVID-19 pandemic. ^{14,15} Our knowledge related to refugees is based on the literature reporting on the conditions in countries where the refugees are isolated from the rest of society. ^{16,17}

The refugees from Ukraine have relatives and friends around them, and they are also being accepted into the new communities all over Europe. They also currently can move more freely because the regional travel regulations have been eased. But from a pandemic health perspective, there is a great need to establish new strategies for these refugees and their host country populations to address the current alarming situation. The challenge is to incorporate refugees into the national and whole European health system. ¹⁸

Infectious diseases and war are maleficent comrades. This reality applies equally well to the war in Ukraine and the current COVID-19 pandemic. Europe is facing a huge refugee crisis and potentially the conflict could worsen the COVID-19 pandemic. Currently Russia and Poland have taken the majority of refugees, and Moldova, which has taken a very large number of refugees on a per capita basis. However, the concern extends to the rest of Europe because of the mobility of refugees beyond the first country they enter. The United Nation Refugee Agency wisely recommends full health-care services access for refugees. Vaccinating and boosting refugees should be a priority, and the European Union (EU) should coordinate these actions with a major effort for the most vulnerable, that is, elderly citizens. However, complete prevention of COVID-19 is very complex, because other issues are

related to the success of prevention. In Ukraine, the low coverage of SARS-CoV-2 vaccination may be explained in part by vaccine hesitancy. ²¹ Odarchenko²¹ indicates that there are several reasons explaining this vaccine hesitancy, including misinformation and widespread distrust of authorities. In addition, there have been concerns regarding the quality of vaccines. ²¹ So, in this crisis, transformational rather than incremental changes in current thinking and practice are needed. ²² Part of the solution to this problem could be essential social behavior change and communication.

Conclusions

As a response to the COVID-19 pandemic, the EU established a new EU Health Emergency Preparedness and Response Authority (HERA).²³ This new authority is comparable to the US Biomedical Advanced Research and Development Authority (BARDA). Thus, the EU has prioritized health in its strategy when establishing HERA. The other strategic decision at the EU level is to strengthen the role of the European Centre for Disease Prevention and Control (ECDC), which bodes well for increased funding and possibly extending the geographic role of ECDC beyond the boundaries of the EU.²³

However, there still is much to accomplish. One earlier example is the slow roll-out of the EU vaccination program and an assessment of how both the United Kingdom and United States managed to accelerate their programs much more effectively. With the activation of the ECDC, there already is published guidance for Ukrainians who need to leave their country and live in temporary accommodation facilities. This guidance covers very much the same topics mentioned earlier in this article regarding the UN refugee Agency guidance. But some fundamental changes in EU health-care policy are on hold because currently EU law states that the response of health care is the responsibility of each Member State. This limiting approach does not necessarily contribute to fast and effective responses when emergency situations arise such as the COVID-19 pandemic as well as other outbreaks, for example, the recent resurgence of polio in Ukraine. 26

Prevention of infectious diseases by vaccines in Ukraine and among the Ukrainian refugees is a very diverse challenge. The challenge is related to the unwillingness of Ukrainians to be vaccinated, the dysfunction of health-care services caused by the war, and the concomitant mental health crisis caused by the war. ^{27–30} Because of these challenges, the World Bank is financing the "Ukraine Emergency COVID-19 Response and Vaccination Project". ³¹ Active vaccination procedures are necessity because the WHO expects a rise of COVID-19 in Ukraine to peak in October 2022. ³²

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References

- Goniewicz K, Burkle FM, Horne S, et al. The influence of war and conflict on infectious disease: a rapid review of historical lessons we have yet to learn. Sustainability. 2021;13:10783. doi: 10.3390/su131910783
- Lancet. Ukraine's humanitarian disaster: priorities for health. Lancet. 2022;399(10329):1023. doi: 10.1016/S0140-6736(22)00472-X

- Zaliska O, Oleshchuk O, Forman R, et al. Health impacts of the Russian invasion in Ukraine: need for global health action. Lancet. 2022; 399(10334):1450-1452. doi: 10.1016/S0140-6736(22)00615-8
- Daw MA. The impact of armed conflict on the epidemiological situation of COVID-19 in Libya, Syria and Yemen. Front Public Health. 2021;9:667364. doi: 10.3389/fpubh.2021.667364
- Swed S, Alibrahim H, Sawaf B, et al. COVID-19, war and poverty in Syria.
 Ann Med Surg (Lond). 2022;75:103382. doi: 10.1016/j.amsu.2022.103382
- Our World in Data. Coronavirus (COVID-19) vaccinations. 2022. Accessed March 30, 2022. https://ourworldindata.org/covid-vaccinations?country= OWID_WRL
- 7. **Matiashova L, Isayeva G, Shanker A, et al.** COVID-19 vaccination in Ukraine: an update on the status of vaccination and the challenges at hand. *J Med Virol.* 2021;93(9):5252-5253. doi: 10.1002/jmv.27091
- Altmann DM, Boyton RJ. COVID-19 vaccination: the road ahead.
 Science. 2022;375(6585):1127-1132. https://doi.org/10.1126/science.
 abn1755
- 9. Arafa A. The forgotten people: impacts of COVID-19 on refugees. *Public Health*. 2022;205:e25. doi: 10.1016/j.puhe.2022.01.032
- WHO. Report on the health of refugees and migrants in the WHO European. 2018. Accessed March 30, 2022. https://apps.who.int/iris/ bitstream/handle/10665/311348/9789289053785-eng.pdf?sequence=1& isAllowed=y
- 11. **Desai AN, Ramatowski JW, Marano N, et al.** Infectious disease outbreaks among forcibly displaced persons: an analysis of ProMED reports 1996-2016. *Confl Health*. 2020;14:49. doi: 10.1186/s13031-020-00295-9
- 12. UN Refugee Agency. Guidance for the prevention and control of COVID-19 in temporary reception centres in the context of the large numbers of people fleeing Ukraine. 2022. Accessed July 5, 2022. https:// www.ecdc.europa.eu/en/publications-data/guidance-prevention-control-covid-19-temporary-reception-centres-people-fleeing-ukraine
- Gignoux E, Athanassiadis F, Garat Yarrow A, et al. Seroprevalence of SARS-CoV-2 antibodies and retrospective mortality in a refugee camp, Dagahaley, Kenya. PLoS One. 2021;16(12):e0260989. doi: 10.1371/journal. pone.0260989
- Kizilhan JI, Noll-Hussong M. Psychological impact of COVID-19 in a refugee camp in Iraq. *Psychiatry Clin Neurosci.* 2020;74:659-660. doi: 10.1111/ pcn.13142
- Palit S, Yang H, Li J, et al. The impact of the COVID-19 pandemic on the mental health of Rohingya refugees with pre-existing health problems in Bangladesh. Confl Health. 2022;16(1):10. doi: 10.1186/s13031-022-00443-3
- Kassem II. Refugees besieged: the lurking threat of COVID-19 in Syrian war refugee camps. *Travel Med Infect Dis.* 2020;38:101736. doi: 10.1016/j.tmaid.2020.101736
- Kondilis E, Papamichail D, McCann S, et al. The impact of the COVID-19 pandemic on refugees and asylum seekers in Greece: a retrospective analysis of national surveillance data from 2020. EClinicalMedicine. 2021; 37:100958. doi: 10.1016/j.eclinm.2021.100958

- Brickhill-Atkinson M, Hauck FR. Impact of COVID-19 on resettled refugees. Prim Care. 2021;48:57-66. https://doi.org/10.1016/j.pop.2020.10.001
- WHO. Ukraine COVID-19 situation. 2022. Accessed September11, 2022. https://covid19.who.int/region/euro/country/ua
- Lau LS, Samari G, Moresky RT, et al. COVID-19 in humanitarian settings and lessons learned from past epidemics. Nat Med. 2020;26:647-648. doi: 10.1038/s41591-020-0851-2
- Odarchenko K. Vaccine hesitancy in Ukraine: the sign of crisis governance? 2021. Accessed September 11, 2022. https://www.wilsoncenter. org/blog-post/vaccine-hesitancy-ukraine-sign-crisis-governance
- Kates RW, Travis WR, Wilbanks TJ. Transformational adaptation when incremental adaptations to climate change are insufficient. *Proc Natl Acad Sci U S A*. 2012;109(19):7156-7161. doi: 10.1073/pnas.1115521109
- Forman R, Mossialos E. The EU Response to COVID-19: from reactive policies to strategic decision-making. *J Common Mark Stud.* 2021;59(Suppl 1):56-68. doi: 10.1111/jcms.13259
- 24. McEvoy J. The EU just hit its 70% vaccination target here's how it overcame a slow start and passed the US. 2021. Accessed July 4, 2022. https://www.forbes.com/sites/jemimamcevoy/2021/07/27/the-eu-just-hit-its-70-vaccination-target-heres-how-it-overcame-a-slow-start-and-passed-the-us/?sh=652e11c32762
- 25. European Centre for Disease Prevention and Control (ECDC). Guidance for the prevention and control of COVID-19 in temporary reception centres in the context of the large numbers of people fleeing Ukraine. Accessed July 4, 2022. https://www.ecdc.europa.eu/en/publications-data/guidance-prevention-control-covid-19-temporary-reception-centres-people-fleeing-ukraine
- World Health Organization (WHO). Catch-up polio immunization campaign to begin in Ukraine. 2022. Accessed July 7, 2022. https://www.who.int/europe/news/item/27-01-2022-catch-up-polio-immunization-campaign-to-begin-in-ukraine
- Choudhary OP, Saied AA, Priyanka, et al. Russo-Ukrainian war: an unexpected event during the COVID-19 pandemic. Travel Med Infect Dis. 2022;48:102346. doi: 10.1016/j.tmaid.2022.102346
- Dhawan M, Choudhary OP, Priyanka, et al. Russo-Ukrainian war amid the COVID-19 pandemic: global impact and containment strategy. Int J Surg. 2022;102:106675. doi: 10.1016/j.ijsu.2022.106675
- Cai H, Bai W, Zheng Y, et al. International collaboration for addressing mental health crisis among child and adolescent refugees during the Russia-Ukraine war. Asian I Psychiatr. 2022;72:103109. doi: 10.1016/j.ajp.2022.103109
- Levy BS, Leaning J. Russia's war in Ukraine the devastation of health and human rights. N Engl J Med. 2022;387(2):102-105. doi: 10.1056/ NEJMp2207415
- The World Bank. Ukraine emergency COVID-19 response and vaccination project. Accessed September 11, 2022, https://projects.worldbank.org/en/projects-operations/project-detail/P175895
- Reuters. WHO sees October COVID surge in Ukraine, cites polio concerns. September 12, 2022. Accessed September 12, 2022. https://www.reuters. com/world/europe/who-sees-october-covid-surge-ukraine-cites-polio-concerns-2022-09-12/