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Letter to the Editor

The Russia-Ukraine war could bring catastrophic public-health challenges beyond COVID-19



Dear Editor,

Dahl et al (2022) recently warned in this journal that armed conflict and human displacement by the Russia-Ukraine conflict may increase the burden of tuberculosis in Europe, but there could be more public health problems ahead. Since last 2 years, the COVID-19 pandemic has been an important catalyst for international collaboration on public health (Jit et al., 2021). This collaboration has not been error-free, especially in relation to an equitable distribution of diagnostic tests, treatments, and vaccines between high-income and low-middle-income countries (Javed & Chattu, 2020).

The pandemic has been, at least temporarily, a kind of freezer of major war conflicts worldwide owing to the joint efforts to mitigate its impact. A better understanding of the virus, growing herd immunity produced by COVID-19 vaccines and/or previous infection (Randolph & Barreiro, 2020; Radbruch & Chang, 2021), and the transition to less lethal variants (Petersen et al., 2022) have coincided with the beginning of a warfare in East Europe. The immediate consequences for Ukraine and surrounding regions are COVID-19 surges, unattended chronic diseases, emerging infections and lower vaccination rates, including anti-COVID-19 vaccination.

The risk of an escalation is latent and consequences are unimaginable if nuclear weapons are used. All simulators of a nuclear war conclude in the inevitable figure of millions of deaths and an incalculable number of people affected by radiation (Nuclear Princeton, 2019). We already know about the immediate- and long-term aftermath of the Chernobyl disaster and the Hiroshima and Nagasaki nuclear bombings in World War II (Duple et al., 2011).

Another threat is the use of biologic and chemical weapons that disseminate biologic agents or toxins to cause harm, disease, and death of humans or animals and harm the environment (Janseen et al., 2014; Ekzayez et al., 2020). In no way can this type of warfare be local or easy to contain. The global scientific community must warn the world leaders about the abyss into which humanity can fall if consensus is not reached in a timely manner to avoid self-destruction.

After the use of nuclear weapons, there will be no winners among survivors. The health systems, especially in the countries most affected by radiation, will have to deal with its short-, medium-, and long-term effects on the population. It is time that

states directly or indirectly affected by the Ukraine and Russia conflict cooperate bilaterally or multilaterally to stop the ongoing war.

Declarations

Founding source

Universidad Tecnológica Centroamericana, Honduras.

Ethical approval

Not applicable

Authors' contribution

CR and RMD developed the concept, reviewed the literature, and wrote the manuscript.

Declaration of Competing Interest

All authors declare no competing interest related to this paper.

References

- Dahl V, Tiberi S, Goletti D, Wejse C. Armed conflict and human displacement may lead to an increase in the burden of tuberculosis in Europe. *Int J Infect Dis* 2022;S1201–9712(22):00180–1. doi:10.1016/j.ijid.2022.03.040.
- Duple EB, Mabuchi K, Cullings HM, Preston DL, Kodama K, Shimizu Y, Fujiwara S, Shore RE. Long-term radiation-related health effects in a unique human population: lessons learned from the atomic bomb survivors of Hiroshima and Nagasaki. *Disaster Med Public Health Prep* 2011;5(1):S122–33. Suppldoi: 10.1001%2Fdmp.2011.21.
- Ekzayez A, Flecknoe MD, Lillywhite L, Patel P, Papamichail A, Elbahtimy H. Chemical weapons and public health: assessing impact and responses. *J Public Health (Oxf)* 2020;42:e334–42. doi:10.1093/pubmed/fdz145.
- Jansen HJ, Breeveld FJ, Stijns C, Grobusch MP. Biological warfare, bioterrorism, and biocrime. *Clin Microbiol Infect* 2014;20:488–96. doi:10.1111/1469-0691.12699.
- Javed S, Chattu VK. Strengthening the COVID-19 pandemic response, global leadership, and international cooperation through global health diplomacy. *Health Promot Perspect* 2020;10:300–5. doi: 10.34172%2Fhpp.2020.48.
- Jit M, Ananthkrishnan A, McKee M, Wouters OJ, Beutels P, Teerawattananon Y. Multi-country collaboration in responding to global infectious disease threats: lessons for Europe from the COVID-19 pandemic. *Lancet Reg Health Eur* 2021;9. doi:10.1016/j.lanepe.2021.100221.
- Nuclear Princeton, Princeton Science and Global Security Nuclear War Simulation <https://nuclearprinceton.princeton.edu/news/princeton-science-and-global-security-nuclear-war-simulation>, 2019 (accessed 22 March 2022).

- Petersen E, Ntoumi F, Hui DS, et al. Emergence of new SARS-CoV-2 Variant of Concern Omicron (B.1.1.529) - highlights Africa's research capabilities, but exposes major knowledge gaps, inequities of vaccine distribution, inadequacies in global COVID-19 response and control efforts. *Int J Infect Dis* 2022;114:268–72. doi:[10.1016/j.ijid.2021.11.040](https://doi.org/10.1016/j.ijid.2021.11.040).
- Radbruch A, Chang HD. A long-term perspective on immunity to COVID. *Nature* 2021;595:359–60. doi:[10.1038/d41586-021-01557-z](https://doi.org/10.1038/d41586-021-01557-z).
- Randolph HE, Barreiro LB. Herd immunity: understanding COVID-19. *Immunity* 2020;52(5):737–41. doi:[10.1016/j.immuni.2020.04.012](https://doi.org/10.1016/j.immuni.2020.04.012).

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