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Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Lefrançois T, Malvy D, Atlani-Duault L, et al. After 2 years of the COVID-19 pandemic, translating One Health into action is urgent. *Lancet* 2022; published online Oct 24. https://doi.org/10.1016/S0140-6736(22)01840-2.

Annexes:

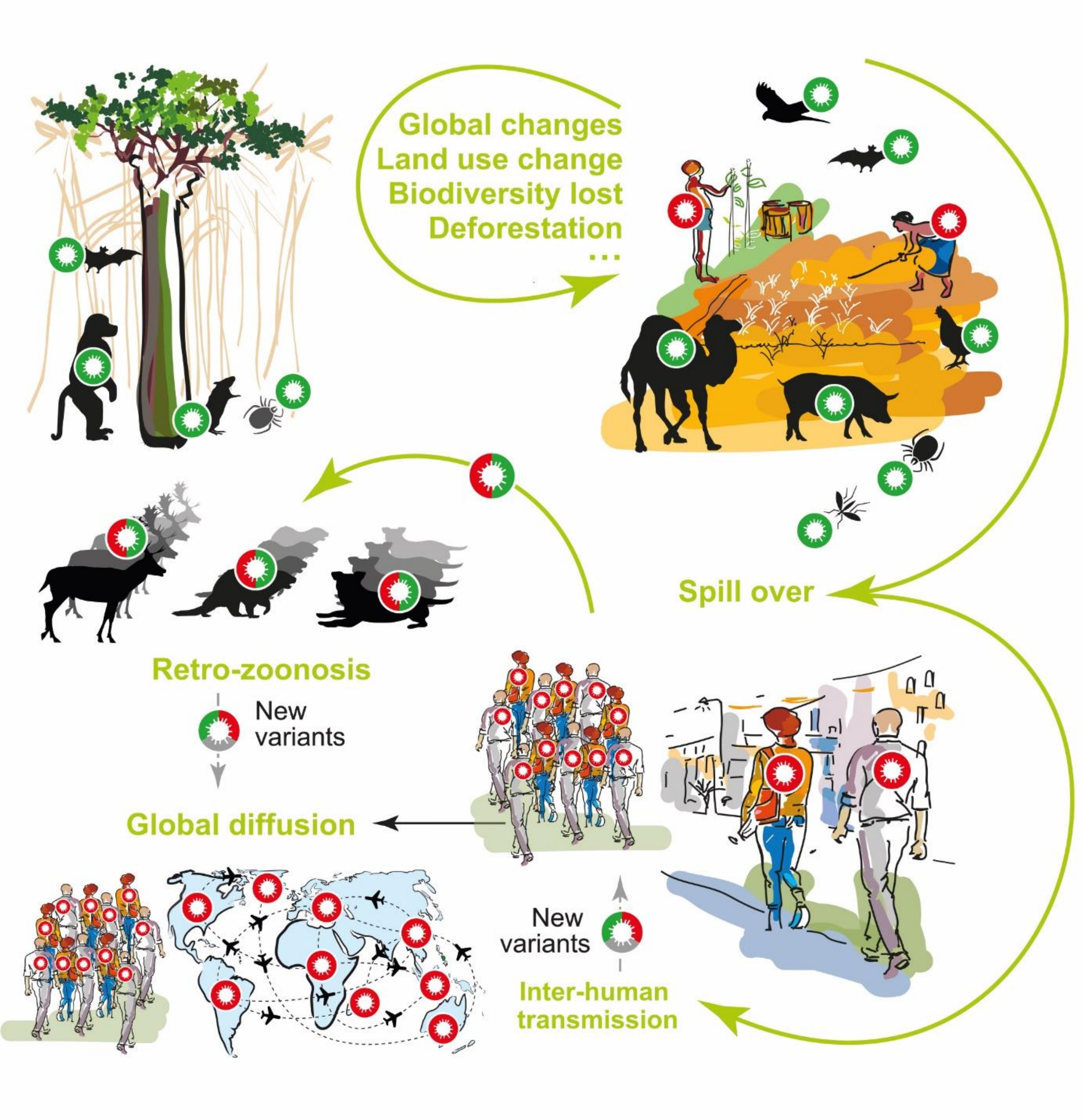

Figure 1. Different steps of a pandemic crisis

Figure 1 describes the different steps involved in a pandemic crisis from the initial circulation of pathogens within wild fauna and the natural environment up to global dissemination after large inter-human transmission. Anthropic factors lead to changes in pathogen circulation and to increased contacts with new animal species, including domestic ones, which can induce spill-over, with possible transmission to humans. The current Covid-19 pandemic highlights the risk of retro-zoonosis, due to intensive circulation of Sars-Cov2 virus in humans, transmission to new animal species and circulation within some that have proven to be highly susceptible (hamsters, minks, or wild-tailed deer), with possible transmission of a mutated virus to humans. New variants can also emerge from circulation within human.

Monkeypox persistence in the environment and reverse zoonosis

Beyond SARS-CoV-2, human Monkeypox virus introduction and possible reverse zoonosis processes have yet to be identified, given its ongoing intercontinental expansion. Though non-human primates are only accidental hosts, rodent species among them the Gambian rat, as well as New World species like the black-tailed prairie dog or various squirrel species like the Eastern chipmunk are potential hosts. Unlike SARS-CoV-2, Monkeypox virus has a remarkable persistence capacity in the environment. Whatever the socio-behavioural determinants of transmission chains that might support the virus expansion in non-endemic Northern settings following the recent introduction of the western Africa clade, the potential implantation of the emerging viral agent might partly depend on its prolonged diffusion through sewage into new animal species (rural or urban, wild or pet) like European squirrels, which harbour characteristics of the natural rodent reservoir. This will require environmental surveillance.

References

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Haddad N. The presumed receptivity and susceptibility to monkeypox of European animal species. Infect Dis Now. 2022 Jun 23: S2666-9919(22) 00122-1. doi: 10.1016/j.idnow.2022.06.006. Online ahead of print. PMID: 35753629

Lessons from Ebola surveillance for capacity building

In sub-Saharan Africa, despite improved laboratory capacity, diagnosis of Ebola and other emerging zoonotic viruses can still be difficult, as clinical assessment is critical for such highly pathogenic agents. In ill-prepared primary healthcare settings, diagnosis is further hampered by a lack of technical capabilities. Technology transfer and training are still in their infancy in many African countries, but awareness of filovirus diagnosis has grown and with simple, more reliable technologies there are prospects for improvement. Notably, since the 2013–2016 Ebola outbreak in West Africa, genome sequencing has become a major component of the response to outbreaks. The establishment of in-country sequencing capacity has led to timely characterization of new filovirus strains. This has an immediate impact on public health strategies, both for assessing efficient molecular-diagnostic tools, therapeutics and vaccines, and for rapid detection of new transmission events from a new epizootic source (from wildlife, great primates, antelopes), or resurgence from a human reservoir that circulated in a previous outbreak.