Joint Statement of the
International Veterinary Students' Association (IVSA)
and the
International Federation of Medical Students' Associations (IFMSA)

Response to COVID-19 - The next generation of health professionals demand immediate change to prevent future pandemics.

As the world faces the consequences of the COVID-19 pandemic, we should not get distracted from its actual aetiology - ever-increasing contacts between human populations and wildlife. This goes hand in hand with inappropriate biosecurity and food safety measures regarding wild and exotic animal products, as well as insufficient international trade regulations and enforcement thereof. The IFMSA and IVSA represent 1.4 million medical and veterinary students from 135 countries. As future healthcare professionals, we emphasize the need for developing and implementing effective solutions, as well as raising awareness in order to fortify global health resilience and emergency preparedness. We are joining forces because we believe in the importance of a multidisciplinary approach in order to prevent the next public health disaster.

COVID-19, a highly contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), poses a major threat to global public health. For the moment, research has shown that the Huanan wet market in Wuhan most likely played a central role in allowing for the emergence of this pandemic. [1] Wet markets in general have historically served as a major point of introduction for emerging zoonotic diseases, for instance in the case of SARS-CoV. [2]

Up to 75% of all emerging human infectious diseases are of animal origin, including HIV, yellow fever, anthrax, ebola, rabies, zika, MERS, SARS, and certain subtypes of animal influenza. [3,4,5] Classically, zoonotic diseases involve reservoir species, but also intermediate hosts between these species and humans. Every wild animal population can serve as a potential reservoir. [5]

The transmission of pathogens from the reservoir species to human populations is facilitated by:

- Creating new interspecies interfaces, which leads different species of animals to be in close proximity to each other and to humans; [6]
- Disregarding animal welfare, which increases animals' stress levels and weakens their immune system; [7]
- Lack of biosecurity, which allows the pathogen to persist in the environment and spread easily. [8]

These conditions are brought together in cases of wildlife trade and trafficking, especially wet markets, as well as in cases of ecosystem destruction, be it direct (e.g. deforestation) or indirect (e.g. climate change). [6,8,9] This sets the stage for zoonoses' outbreaks. [6] Developing a vaccine or treatment for such emerging diseases is always costly and complicated, as they implicate new types of pathogens. [10,11] Zoonoses therefore have substantial social and economic impacts. [12]

Even though wildlife trade and trafficking most likely play a prominent role in the spread of zoonoses, they are still insufficiently regulated or prevented. [8,13,14,15] Existing international legislation regarding wildlife trade is severely lacking. Species sometimes are either not covered at all, or not identified with sufficient precision. In addition, conditions of trade and consumption are rarely taken into account. Several countries have passed additional national laws to compensate for this. [8,14]

Even then, all this legislation is often poorly enforced, especially when it is drastic or not in harmony with the communities. [14] Wildlife trade being banned in the past (after the SARS-CoV pandemic for instance) has led to a shift of the trade into illegality. [15] Undiversified economies, as well as a lack of investment in education, can lead communities to see ecological exploitation as the only option for secured existence. [8] Well-regulated and sustainable wildlife trade, on the other hand, has been proven to have positive impacts on economy and health on a local and global scale, all while making the practice safer for the people, animals, and the environment. [16]

There is also a lack of multidisciplinary well-coordinated collaboration in research, prevention, diagnosis and general surveillance of zoonotic diseases. Human medical education and practice lack emphasis on One Health or zoonotic diseases. In the public health sector, veterinarians, medical doctors and ecologists still tend to work independently. The COVID-19 pandemic reveals that partnership between health and environmental professionals, as well as experts from social and economic disciplines, is necessary for prevention of such outbreaks. For all intents and purposes, that framework is nonexistent. [3,4,17]

To prevent and reduce pandemic risks and improve conservation worldwide, we call on policymakers, international organizations, and all relevant stakeholders to:

- Push for stronger regulation of wildlife trade, both on an international and local scale;
- Enforce those regulations better through constructive work, hand-in-hand with the communities involved, via peaceful problem-solving and de-escalation of conflict, towards a sustainable improvement of biosecurity and therefore global health;
- Enhance wet-markets' biosecurity through stronger prevention measures, such as increasing hygiene standards, implementing quarantines, and improving animal welfare;
- Support communities in creating alternative food and income sources, and improving cohabitation with wildlife;
- Educate communities on the importance of ecosystems' balance and diversity, as well as their management, highlighting the impact of conservation and hygiene efforts;
- Emphasize the importance of ecology in disease prevention, and push for more research in the fields of climate change and ecosystem destruction;
- Promote One Health in all health professionals' education, making sure a proper training regarding zoonotic diseases and their detection is included;
- Allocate more efforts and resources to developing international frameworks with a multidisciplinary approach for research, disease surveillance and prevention.

None of the strategies put in place so far have addressed the root cause of the COVID-19 pandemic, nor will they prevent upcoming outbreaks of zoonotic diseases. We need to develop a multi-disciplinary, "One Health" approach to disease surveillance and outbreak response if we want to ensure functional global public health infrastructures. As things stand now, we have the opportunity to avoid repeating history. We must implement the lessons we have learned from this pandemic to improve quality of life, food safety and security, wildlife trade regulations, as well as conservation of biodiversity. Considering how severe and unprecedented the socio-economic consequences of this pandemic have been, it is crucial for measures to be taken. Our planet is an epidemiological time bomb. As future healthcare professionals, we are calling on world leaders to allow and empower us to take action towards defusing it.

References:

[1] A. A. Al-Qahtani; Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2): Emergence, history, basic and clinical aspects; Saudi Journal of Biological Sciences; 2020
[2] World Health Organization; Consensus document on the epidemiology of severe acute respiratory syndrome (SARS) by department of communicable disease surveillance and response; 2003
[3] Dahal R, Kahn L; Zoonotic Diseases and One Health Approach; Epidemiology Open Access; 2014
[4] Zumla A, Alagaili AN, Cotten M, Azhar EI. Infectious diseases epidemic threats and mass gatherings: refocusing global attention on the continuing spread of the Middle East Respiratory syndrome coronavirus (MERS-CoV). BMC Med. 2016;14(1):132. Published 2016 Sep 7. doi:10.1186/s12916-016-0686-3
[5] Wolfe ND, Dunavan CP, Diamond J.; Origins of major human infectious diseases. Nature. 2007 May 17;447(7142):279-83. doi: 10.1038/nature05775. PMID: 17507975; PMCID: PMC7095142.
[6] Kreuder Johnson, C., Hitchens, P., Smiley Evans, T. et al. Spillover and pandemic properties of zoonotic viruses with high host plasticity. Sci Rep 5, 14830 (2015).
[7] M. Staley,M. G. Conners,K. Hall, L. J. Miller. Linking stress and immunity: Immunoglobulin A as a non-invasive physiological biomarker in animal welfare studies, Hormones and Behavior, Elsevier, June 2018
[8] WHO/CBD - Connecting Global Priorities: Biodiversity and Human Health - A State of Knowledge Review 2015
[9] Rogers, D., Randolph, S. Studying the global distribution of infectious diseases using GIS and RS. Nat Rev Microbiol 1, 231–237 (2003).
[10] Mark McCord Coronavirus vaccine: how soon will we have one? World Economic Forum articles 25 Mar 2020
[11] Rauch, S., Jasny, E., Schmidt, K. E., & Petsch, B. (2018). New Vaccine Technologies to Combat Outbreak Situations. Frontiers in immunology, 9, 1963.
[12] Jones, K., Patel, N., Levy, M. et al. Global trends in emerging infectious diseases. Nature 451, 990–993 (2008).
[14] "International wildlife trade regulation and its enforcement in Malaysia" by Mariani Ariffin, Maizatun Mustafa, in Legal Network Series in January 2013;
[15] Travis DA, Watson RP, Tauer A. The spread of pathogens through trade in wildlife. Rev Sci Tech. 2011;30(1):219-239. doi:10.20506/rst.30.1.2035
[16] International Trade Centre (ITC) The Trade in Wildlife: A Framework to Improve Biodiversity and Livelihood Outcomes Geneva: ITC, 2015. xii, 29 pages (Technical paper) Doc. No.: SC-15-311.E
[17] Implementation of One Health in undergraduate education. Doctors, dentists, pharmacists and veterinarians working together from curricula to practice Warsaw, 4 December 2019