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IFMSA Policy Document One Health

Proposed by the FASMR-Romania and LeMSIC-Lebanon

Adopted at the IFMSA General Assembly August Meeting 2019, in Taipei, Taiwan.

Policy Statement

Introduction:

Transboundary interactions between humans, animals and the environment are complex and constantly evolving. This means that in order to protect the health of people, we need to also protect the health of animals and the environment and vice-versa. Therefore, One Health practices implemented globally include breaking down the silos between the animal health, environmental health, and human health sectors, for better surveillance, detection, prevention, and response to current health threats.

IFMSA Position:

IFMSA affirms the urgent need for a collaborative One Health approach in the control and prevention of diseases and acknowledges the essential role of sustainable interprofessional and intersectoral collaborations on the local, national, and global scene, that lead to more resilient public health systems prepared to face existing and future disease threats in an effective and cost-efficient manner, thus attaining optimal health for people, animals, and the environment.

Call to action:

Therefore, the IFMSA calls on:

Governments to:

- Invest in the prevention of zoonotic disease outbreaks;
- Follow the WHO recommendations on the use of medically important antimicrobials in food-producing animals;
- Invest in the animal health sector, in order to reduce the need for antimicrobials through vaccination programs, improved biosecurity and other disease control strategies;
- Increase awareness of the principles of basic hygiene of animals and humans, as well as the importance of following the prescriber's instructions regarding antibiotics;
- Improve monitoring and risk assessment systems for antimicrobial resistance (AMR);
- Develop sustainable methods such as waste-recycling to limit pollution and protect the environment and wildlife from man-made damage;
- Develop new policies to limit the emission of pollutants, such as toxins from fossil fuel-based power;
- Develop a health system that will account for the changes in disease patterns, pathogenicity, and distribution.

Universities and other Educational Bodies to:

- Educate future healthcare professionals about the potential economic benefits of disease prevention, through the One Health Approach;
- Develop initiatives that provide students the opportunity to collaborate with colleagues and experts from various professional backgrounds;
- Include the One Health approach, including zoonotic diseases in the medical curriculum and improve the capacity of the teaching personnel on the notion of One Health and interprofessional collaboration.

National Member Organizations and other student bodies to:



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- Develop collaboration strategies between other student organizations from the health and agricultural sector, such as, but not limited to, veterinarians and pharmacy students;
- Advocate for the One Health approach and interprofessional collaboration and raise awareness on the impact of climate change on health;
- Develop collaborations between healthcare and agricultural students in the fields of antimicrobial resistance, vaccination, zoonotic diseases and environmental sustainability.

World Health Organization (WHO) and Member States to:

- Promote a clear definition to ensure a common understanding of the One Health concept;
- Work together with the World Health Organization for Animal Health (OIE) and the Food and Agriculture Organization (FAO) in the fields of antimicrobial resistance, vaccination, climate change and diseases control.

Food industries, farmers and animal owners to:

- Follow veterinary advice on antimicrobial usage;
- Eliminate the futile usage of antimicrobials without recommendation or valid indications;
- Limit the overuse of pesticides, run-off, and other pollutants;
- Apply direct measures to control the level of pollution produced by industrial, residential and agricultural parties;
- Develop a sustainable, cost-effective, and environmentally aware food production system.

Research Institutes to:

- Promote research on the economic and health benefits of containing zoonotic disease outbreaks through the One Health approach;
- Promote research on the benefits of multi-sectoral collaborations in decreasing the economic burden of zoonotic diseases;
- Establish interdisciplinary research collaborations involving the three domains of the One Health Approach - humans, animals and the environment - to promote the development of unified strategies and policies.



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Position Paper

Background information:

According to the World Health Organization (WHO), "One Health is an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes." The US Central for Disease Control (CDC) adds that One Health is "as a collaborative, multisectoral, and transdisciplinary approach — working at the local, regional, national, and global levels — with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment.

In a shared and intertwined environment where both animals and humans live, there are a number of threats that can influence their well-being, such as microbes and infections that plague both of them. Diseases like rabies, Salmonella infection, and West Nile virus are examples of zoonotic diseases—diseases that can be shared between animals and people. Animals can sometimes serve as early warning signs of potential illness in people.

The One Health approach is also closely related to a public health hazard, antimicrobial resistance. Both animal and human are prescribed antimicrobials, a fundamental therapeutic instrument that improved the overall quality of life of both humans and animals and that prevented countless lives. However, antimicrobial overuse and misuse has proven to be more harmful than beneficial due to the emergence of antimicrobial resistant bacteria. Indeed, antimicrobial usage in animals has been shown to affect the proliferation of resistant bacteria in human hosts. As stated previously, many of our diseases are transmitted from animal reservoirs which highlights the need for strategies that can prevent this transmission, being one them Vaccination. Avian influenza and Bovine tuberculosis are just two examples of vaccine-prevented diseases that can improve both animals and humans lives, however a multiple sector approach is needed to implement measures like these in the overall plans for immunization on a local, national, regional and global level.

Animals and humans are linked by a number of factors, one of them being the space, the environment they share and the determinants that influence their wellbeing. One of the aspects that connect animals, humans and the environment are the food production systems and the burden that increasing globalization put upon these systems. With the increasing demands, came a number of strategies that tried to increase productivity such as the usage of antibiotics and chemicals. However, used indiscriminately and in not a sustainable planned way, they can have the opposite effect, increasing antimicrobial resistance and food toxicity that by a process of bioaccumulation can also have truly negative effects in our health.

In summary, there are a number of examples in which the expertise of professionals in different health sectors collide and efforts by just one sector cannot prevent or eliminate the problem, but a coordinated strategy that joins professionals from multiple areas. This cross-sectional approach gathers a range of professionals' expertise who are active in different sectors, such as public health, animal health, plant health and environmental health. This can result in an increased capacity to detect, respond to, and prevent outbreaks of zoonoses and food safety problems, gather epidemiological data and laboratory information across sectors and can tackle public health hazards that plague both humans and animals.

Discussion:

Zoonotic Diseases

Zoonoses are defined as any disease or infection caused by all types of agents (bacteria, parasites, fungi, viruses and unconventional agents) transmissible from vertebrate animals to humans and vice-versa. The significant public health risk is represented by the increased onset of outbreaks and epidemics of human infectious diseases emerged from animal reservoirs in the past decades. In fact,



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at least 61% of all human pathogens come from animal reservoirs, and 75% of emerging infectious organisms pathogenic to humans are zoonotic in origin. (1) Overall, zoonotic diseases account for more than one billion cases and a million deaths per year. (2)

The emergence of zoonotic diseases and their spread is drastically increasing. This is due to interactions between pathogens and their reservoir hosts and between the host and other species, including other wildlife, livestock and humans. The drivers of these interactions include the modernization of farming and agriculture practices without adequate biosecurity, habitat destruction, human encroachment, climate change, changes in land use, trade and travel, and urbanization. As a result, these diseases contribute to constant epidemics causing economic burden through impacts on health and livelihoods, agricultural production and ecosystems. Understanding these drivers and their impact will allow the development of mitigation strategies and enable an effective and timely response. (3)

Effective mitigation of the impact of endemic and emerging zoonotic diseases of public health importance requires multisectoral collaboration and interdisciplinary partnerships, from human and animal disease surveillance systems in early detection and response, to prevention plans and control programs, and evaluation of the effectiveness of control and prevention strategies.

Early detection of an impending human outbreak is of absolute importance, through detection of an increase in disease in animal populations, such as livestock and wildlife populations. Here, it is imperative to acknowledge the critical role that the veterinarians can play: they are the ones who can detect most efficiently such changes in the animal populations; and the ones most equipped to act on it. Consequently, other professionals must also actively involve veterinarians in national discussions on related issues. This detection can only occur if there is effective communication between the different sectors. Outbreak response protocols or national strategies should be developed for priority zoonotic diseases that specifically address coordination of activities, data sharing, trigger points or threshold for action, and roles and responsibilities of each stakeholder. (4)

In order to support countries in strengthening a multisectoral collaborations, the One Health Office developed a "One Health Zoonotic Disease Prioritization Workshop". By conducting this workshop, the CDC assists countries in prioritizing endemic and emerging zoonotic diseases of major national concern, therefore focusing limited resources on their top zoonotic diseases that should be jointly addressed by national-level human, animal, and environmental health sectors in a country. (5)

Vaccination

Vaccination is at the core of zoonoses prevention, due to its involvement in both human and animal well-being and to its significant effect on their shared environment. Vaccination is known to be essential for human protection against countless pathogens. Considering that many of these pathogens are transmitted from animal reservoirs, it is important to adopt a One Health approach when it comes to immunization, therefore breaking the chain of animal to human transmission of diseases.

In fact, national and global strategies started integrating the vaccination of animals and rodents in the management of certain diseases. For example, one study showed that rabies deaths in India can be reduced by 90% if vaccination isn't limited to humans after a dog bite but is expanded to cover 13% of stray dogs annually. (6)

Moreover, underprivileged areas often suffer from endemic zoonoses which are hard to contain once they are transmitted to humans due to the low resources available. Hence, it was found that a cost-effective approach includes preventive One Health interventions through the vaccination of animals in these areas. Such a strategy would also address the global concerns towards emerging zoonoses with pandemic potential. (7) The Ebola virus outbreak in 2013 was a global devastation resulting from a lack of preparedness and the inability to manage infected individuals. However, future related outbreaks can be prevented through not only the development of human vaccines but also animal vaccines thus leading to the creation of an "inter-species immunity". (8)



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On the other hand, it is worth noting that though the vaccination of stray dogs, apes and other wild animals is essential, we should not overlook the importance of vaccinating domestic animals as well. They are too reservoirs of many zoonotic diseases such as brucellosis. (9)

Moreover, immunization of swine and poultry workers against influenza is common not only for self-protection but also as a means to avoid the introduction of these viruses to animals which are part of our food industry. It has been emphasized as a way to prevent the emergence of reassortant strains. Therefore, using vaccines is essential as a prophylactic measure, as it can control the development and spread of diseases. (10)

Therefore, partnerships between physicians, pharmaceutical industries and veterinarians are essential in order to provide solutions to the global spread of zoonotic diseases, both in humans and animals. Today, the development of vaccines for us is separated from that aimed to be used in animals. Hence, a mutual collaboration between them can provide new additives to the current strategies employed in the control of zoonotic diseases. (11)

Even if creating vaccines on such a large scale for so many species and so many diseases might not be economically attractive at first glance, there is much more to it. Prevention of zoonotic diseases in humans by means of vaccination of domesticated or wild animals is an attractive but under-exploited concept. Obstacles include the lack of commercial incentives and the many differences between procedures used in the production of human and animal vaccines for the same infections. (11)

Therefore our efforts should be merged and funding agencies should be encouraged to seek integrated approaches for the prevention of zoonotic diseases in order to attain what we've always strived for: a world free of diseases.

Antimicrobial Resistance

Antimicrobial agents are extremely important in our daily fight against pathogens: they provide us with the much needed protection against bacteria previously considered as deadly. In 1900, the major causes of death in the US were pneumonia, tuberculosis and other now treatable infections. In 2010 the relatable deaths became nearly nonexistent. (12)

However, antimicrobial overuse has proven to be more harmful than beneficial due to the emergence of antimicrobial resistant bacteria. A study based on 2007 data estimated that 386,000 infections due to multidrug-resistant bacteria (MDRB) occurred in Europe that year and that 25,000 patients died from these infections. (13) Indeed, the rate of development of such bacteria was found to be strongly correlated with the increasing rate of antibiotic administration. (14)

Our use and misuse of antimicrobials has been well documented in the literature, however what we often seem to miss is the broader involvement of animals and the environment in this problem. Antimicrobial usage in animals has been shown to affect the proliferation of resistant bacteria in human hosts. It is true that for companion animals, drugs are given in a way comparable to human consumption: case by case. (15) However, in food production animals, antimicrobials are administered in masses through food and water either for prophylaxis or for treatment purposes. And what's even more worrisome is the long-term, low-dose mass medication for growth promotion. (16)

On another hand, waste from treatment plants and the pharmaceutical industry, particularly if inadequately treated, has been shown to release high concentrations of antimicrobials into surface water. (17) Human sewage also contains residues and metabolites of drugs and treatment doesn't eradicate them completely. (15) Hence, the resulting contaminated water is being used for the irrigation of fruits and vegetables and as a "potable" water source in certain regions. This is thus providing another portal of entry to these antimicrobials into our body, therefore contributing to the selection of multi-drug resistant bacteria.



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The lack of control on the over-the-counter availability of antimicrobials for both human and animal use is a widely acknowledged factor of this ever-growing resistance to antimicrobials. However, another main contributor is the lack of motivation for change. We are used to rely heavily on big organizations to do the work and as a counterpart we are not willing to personally invest the effort and time in the implementation of radical reforms. (15)

Environmental impact on health

In our society, humans have grown to be dependent on the environment. All of the human activity is related to the environment in one way or another. It has been reported that the environmental damage is responsible for 2-6% of the total burden of disease. (18) Therefore, the impact that the environment has on the quality of life must be taken into consideration heavily.

Even though humans rely on the environment to complete their daily activities, it is those same activities that is resulting in substantial damage to the environment which resulted in climate change that is causing a negative impact on human health. Some of the reported negative implications are physical, socio-economical, and even psychological. It is associated with poverty in the long term, mass migration, armed wars due to the scarcity of resources, malnutrition, mental health deterioration, and injuries.

Due to the increase of greenhouse gases, there has been an increase in the earth's average temperature. This is leading to melting of the polar caps increasing the sea levels which in turn will lead to floods. At the other end of the spectrum, in geographical areas where the average temperature is already elevated, they are susceptible to more intense heat waves and thus leading to droughts and an increase in wildfires. In addition to the increase in the average temperature, there is a remarkable increase in the level of air pollution. It has led to an increase of cardiac and respiratory diseases. Moreover, toxic outputs of fossil fuel-based power production and use has led to the increase of cancer rates. This has caused air pollution to be added as a risk factor for noncommunicable diseases.

In addition to air pollution, there has been increased level of water and land pollution. It has been noted that the annual global consumption of plastic has mounted to approximately above 320 million tons, and that number is still on the rise. This has had several repercussions on the ecosystem's balance. The elevated number of plastic waste has caused damage to the animal life such that several plastic materials were found inside several animals such as fish and birds. This will not only affect the animal's health, but affect all human diets. Moreover, some plastic material when thrown into landfills release methane. This will lead to an elevation in the greenhouse gases levels and thus increasing the already-alarming levels of global warming. The plastic material, that do not end up in landfills, end up polluting lands, rivers, and eventually the ocean. Water pollution has rendered the aquatic life in danger, such that recent reports have shown the Great Pacific Garbage Patch to be three times the size of France. (19)

The environmental disturbances has not only had a direct effect on human and animal health, but also indirect effects. Due to the changes in the earth's temperature, rainfall levels, and sea levels, there has been contamination of crops around the globe. This is causing a Scarcity in the nutrition levels. This in turn will most likely cause humans to rely on unhealthy diets dominated by processed food and animal products. From that, humans will then result to rely on food production systems that can harm the environment and animals even more. This is leading to a vicious health cycle that will keep on adding negative effects on health.

In addition, due to changes in the temperature and increased polluted rainfall, certain areas in the world are facing water scarcity throughout droughts. This will lead to a decrease in hygiene and sanitation levels, and thus, an increase in the level of diseases. Similarly, due to the changes in the atmosphere, this has caused pathogens to grow in regions that are usually uncommon for them to be present. An example of such is malaria. Due to the increase in the earth's temperature, mosquitoes are able to survive farther than the equator now thus being able to infect humans outside of the disease's natural



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geographical distribution. Moreover, those environmental changes are affecting the virulence of diseases as well, and that could be related to the increased levels of antimicrobial resistance.

All these implications can be attributed to the concept of the tragedy of the commons. This concept refers to actions done by humans for the sole reason of self benefit. Neglecting the benefit of the masses is resulting to catastrophic effects. Only when human actions are at balance with the environmental output and animal health is when the negative implications can regress. Scientists have warned that if immediate actions don't take place, by 2030, humans would have created a series of chain events that will have extinction level effects. Therefore, since the need for a balance is of primary focus, the One Health Approach is the most suitable to meet these goals. (20) (21) (22)

Food production systems

It is imperative to study all the causes of the health burden placed on humans, animals, and the environment. Since the One Health approach aims to tackle important health issues holistically, one must look at external factors that will have a direct health on one of the previously mentioned corner stones, if not all. One of the leading causes of the distortion in the health status of humans, animals, and the environment is the food production system. The food production is directly related to One Health as it is related to the transmission of zoonotic diseases, the residues of antibiotics, and the resistance genes that are present in the environment; in addition, it is a topic that discusses the environmental and animal as host reservoirs of many diseases. This later relationship will in turn allow the discussion of challenges related to the transportation of those diseased animals or their byproducts such as manure. (23)

Moreover, another implication of the food production that relates in parallel to the One Health approach is the land use. The first step of the food production chain is the clearance of land in order to either grow plants or raise animals (24). Following so, the land must be primed. This will lead to an intense use of harmful chemicals that will in fact damage the environment all in attempts to grow more crops. Through several mechanisms, the chemicals can be then accumulated into organisms higher up in the food chain in a process known as "Bio-accumulation". Bio-accumulation of chemicals at toxic concentration can in turn cause several health implication on animals and humans. However, it isn't as simple as such, as planting and harvesting those crops will in turn as well lead to the depletion of resources from the land, thus increasing the need to using those harmful chemicals. It has been reported that there has been an increase of approximately 700% during these past 40 years in the global fertilizer use (25). Thus, this vicious cycle of harmful consequences will self perpetuate and continue to cause harm to the environment and all its beneficiaries. (26).

Another way in which the food production system is harmful to the ecosystem is its effect on climate change. Due to increase in the world's population, there has been an increase in the demand in farming. This unbalanced trade-off is causing several negative ripple effects on the environment (27). This overwhelming need led to the emergence of different land-use practices. These new practices has led to the doubling of the world grain harvest over the past few decades, heavily exceeding 2 tons yearly (28). . However, even though these practices have led to an increase in food production, these short-term outcomes have caused long-term damage to the services offered by the ecosystem (29) . For example, it is reported that approximately an estimated \$11 billions in lost productions and around 1.5 million hectares of arable land per year will be lost worldwide simply due to the fact that lands are becoming salinized. In addition, around 40% global croplands will possibly experience a certain degree of erosion, fertility reduction, or even overgrazing (30).

As mentioned, there is an increase in the food production rates in order to meet the increasing needs of the people leading to over farming and overgrazing. This in turn will lead to an increase in the emission of greenhouse gases. Besides the large amount of methane released by livestock animals, the amount of waste (fecal products) produced (around 12.5 million kilograms a year) outweighs the quantity of manure needed. The excess waste will then only pollute the air, land, and different water bodies (31). In addition to the overproduction of methane, the increase number of livestock animals will



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require a large amount of water. This will accentuate the droughts that are believed to be caused by climate change in the upcoming years. It has been found that approximately 85% of the global consumptive use of water resources has been primarily due to agriculture (32).

Another way that the food production system relates to the One Health approach is through the system's relationship with infectious diseases. The change in the land-use practices has also led to a change in disease dynamics. Several food-borne pathogens have begun to emerge and have been linked to the farming systems that are being implemented. Similar to the harsh chemicals that are being used on the land, these various pathogens are able to thrive in the food chain (33). For example, the deforestation of tropical forests is coinciding with the increased emergence of pathogens that are transported by animal vectors such as malaria (34). Moreover, it was also found that around 75% of emerging human pathogen are linked to domesticated animals or wildlife with 26% of those pathogens able to infect both (35). This means that the livestock are becoming intermediate/amplifier hosts/vectors. Through them, pathogens can evolve and cross over to infect into humans (36) Therefore, taking the preceding into account, the disruption of ecosystems due to the food production systems available now becomes the leading cause of these disease emergence. (34)

All of the consequences of the food production system on the health of the humans, animals, and environment discussed show that this system has a net negative effect that transcends the typical health boundaries. This shows that there is a need for more sustainable actions to be taken with regards to the food production system. Since it can affect humans, animals, and the environment, the best approach to form this sustainable strategic plan is through utilizing the "One Health Approach" as it will target all the negative implications of the current food production system. (37)

Economic benefits of one health

When making the economic case for the One Health approach, one must respect the eternal logic principle suggested by the CDC that states: "when avoidable losses are greater than costs of a change in any disease status, investment is worthwhile". The latter speaks directly to the long attested list of benefits that this approach accounts for.

These benefits contributing to the improved health or economic efficiency range from specific measures like a cost-effective reduction in disease transmission and incidence by 15%, to an all-inclusive expected benefits, referring to hazards that could be disaggregated into their respective outcomes (preventing, detecting and combating future pandemics of H1N1). This concept has been around for years and promoted by international institutions as a framework to improve public health outcomes. Most One Health advocates understand there are economic and public health benefits to approaching disease occurrences as both a human, environmental and animal health issue.

The World Bank has already funded health projects that address zoonotic disease outbreaks and analyzed the economic costs and benefits of comprehensive and complementary strategies to reduce the incidence of selected zoonotic diseases. Their findings support the idea that integrated surveillance and control, community education, building laboratory capacity that supports both animal and human diagnosis, and cross training and collaboration of community-based health workers, elevate PH prospects. Additionally, financial support of these activities provided excellent returns on investment.

Another renowned example favoring the financial aspect of One Health (OH) is of the West Nile virus (WNV) surveillance. During the period of 2009 -2015 in Emilia-Romagna, Italy, One Health approach was chosen to reduce the risk of West Nile virus (WNV) transmission through blood. It was registered that a €160,921 savings were made, when compared to uni-sectoral approach that was used before. Likewise, for the EI-Sevier paper titled "the Benefits of a one health approach: An example using Rift Valley fever", it presented a cost-savings of 35% across a multi-ministry health study. Proving how the One Health approaches can be directly and tangibly applied to health investigations.



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Even the AMR crisis, one of the most brought up topics that can only be eradicated by OH, has proven to substantially alleviate the economic burden. According to the World Bank Report 2019, the lower health care expenditures yearly are expected to decrease by as much as \$0.22 trillion in 2030 if the low AMR case is avoided, and by as much as \$0.7 trillion if the high AMR case is avoided. However, despite the fact that a large number of international stakeholders do consider the One Health approach necessary for more effective protection of the global community against health threats, there is still no systematic allocation of resources to integrated national or multinational programmes, partly due to the inertia of existing sectoral systems and the lack of convincing economic arguments in support of the approach.

We can witness the previous through the bureaucratic and institutional barriers to “one health” strategies that are difficult to eliminate. The effective control of any infectious disease requires data, epidemiological expertise, and diagnostic/laboratory resources. Building the human, botany and animal laboratory capacity to conduct effective surveillance, accurately diagnose disease, and analyze epidemiological data to develop countermeasures, are essential components of effective infectious disease control. While there will be significant costs associated with the initial deployment of diagnostic and analytic resources and capabilities, the economic benefits of lower health costs, improved human economic productivity from a reduction in days of work lost due to illness, reduced disease transmission among animals, and more comprehensive health information to support optimal health policy choices for humans and animals, are quantifiable benefits.

As previously demonstrated, the collection of literature concludes that most published work on One Health describes how this it is valuable without trying to estimate the size of benefit or type of value cumulatively in all its aspects. And so the only path for the development of a One Health approach is through the creation of a monitoring substructure for measuring the advantages gained from a holistic approach to health to boost its funding and witness the impact. (38) (39) (40) (41) (42) (43)

Interdisciplinary collaboration & initiatives

Health issues at the human-animal-environment interface cannot be effectively addressed by one sector alone, but countries should rather benefit from taking a One Health approach that is multi sectoral and multidisciplinary, to build national mechanisms for coordination, communication, and collaboration. However, health system evaluations continue to identify major gaps in capacity to implement multi sectoral and multidisciplinary collaboration within and between countries. (44) In order to respond to those requests, and help countries build resilient public health systems prepared to face existing and future disease threats at the human-animal-environment interface, the international community has sharpened its focus on One Health.

The “Operational Framework for Strengthening Human, Animal and Environmental Public Health Systems at their Interface”, was released by the World Bank in 2018. This framework provides a practical reference that addresses the need for targeted investments that prevent, prepare, detect, respond to, and recover from issues like diseases with endemic, emerging, and pandemic potential. It includes a review of existing tools and processes. (45)

On another hand, the World Organisation for Animal Health (OIE), Food and Agriculture Organization (FAO), and the World Health Organization (WHO) have been working together in a tripartite partnership to address infectious diseases at the animal-human-ecosystems interface (FAO/OIE/WHO 2010). Those players with different perspectives and levels of resources are committed to working more closely together to align activities related to managing and responding to risks related to zoonoses in order to support member countries. (46)

In 2019, the FAO/OIE/WHO released a guide entitled “A Tripartite Guide to Addressing Zoonotic Diseases in Countries” that provides principles, best practices and options to assist countries in achieving sustainable and functional collaboration. This way, countries can build or strengthen their national capacities in establishing a Multisectoral, One Health Coordination Mechanism (MCM).

The collaboration also claims that a One Health approach is important for national and global health security, in implementing the World Health Organization (WHO) International Health Regulations (2005)



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and the international standards in animal health, veterinary public health, zoonotic diseases and animal welfare developed by the World Organisation for Animal Health (OIE), and to contribute to many of the Sustainable Development Goals and the 2030 Agenda. (44)

An example of a sustained interprofessional partnership is the Memorandum of Understanding between the World Medical Association (WMA) and World Veterinary Association (WVA) to collaborate on One Health. The scope of cooperation includes the concept of joint educational efforts between human medical and veterinary medical schools, cross species disease surveillance to prevent zoonotic diseases, collaboration in the responsible use of antimicrobials with respect to critical antimicrobial lists for humans and animals, and collaboration between human and veterinary medical professions in medical education, clinical care, public health and biomedical research. (47)



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