

Outbreak Control and Preparatory Actions in the New Normal Period

Recep Öztürk

Prof. Recep Öztürk

Prof. Recep Öztürk graduated from Istanbul University (IU) Cerrahpasa School of Medicine in 1984 and did his specialty training in Infectious Disease and Clinical Microbiology at same university. He was awarded the titles of Associate Professor in 1994 and Professor in 2000. He served as the member of the Council of Higher Education (CoHE) between 2009-2013 and the member and vice chairman of the Council of Medical Specialty (TUK) between 2011-2015. He is the member of the National Infection Prevention and Control Committee, the Advisory Committee for Immunization, the Scientific Advisory Committee for Flu and the Scientific Committee for Coronavirus of the Ministry of Health of Turkey. His primary occupational fields are healthcare related infections, infectious diarrhea, laboratory diagnosis of infectious diseases and quality and accreditation in higher education. Currently, Prof. Öztürk is the Head of Infectious Disease and Clinical Microbiology Department at the School of Medicine of Istanbul Medipol University and the Coordinator of the University Quality Committee.

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Recep Öztürk

Istanbul Medipol University

rozturk@medipoledu.tr

Abstract

Persisting worldwide, the COVID-19 pandemic results not only in major public health concerns, but also in several social and industrial issues in economy, labor, education and many other fields. In this context, the epidemic continues to take a negative hold. Due to, amongst others, the increasing and aging population, improper urbanization, irregularities in income distribution worldwide, increased resistance to antimicrobial agents, global warming and climate changes, intrusive approaches to wildlife, the epidemiology of infections is undergoing a worldwide change and new infectious diseases are emerging, some of which pose a threat of outbreak, even pandemic. Therefore, different policies should be adopted against outbreaks both on a national and global scale.

An “Institute of Infectious Diseases and Epidemics” should be established very urgently within TUSEB (Directorate of Health Institutes of Turkey). Actions that attach importance to the understanding of “Singular Health” should be taken throughout the country. The efforts to take structural measures that will work in case of epidemics, to raise qualified manpower in medicine and to achieve the required capacity of vaccine and drug production along with rapid diagnosis and advanced analysis in epidemic situations should be maintained consistently. During the outbreak, further actions should be taken for potential issues in social life, economy, labor, education, agriculture and other fields. To achieve these goals, specific policies should be set, and an advanced cooperation should be established between the World Health Organization and other concerned international organizations by ensuring the integrated operation of institutions within the country.

Keywords

COVID-19 pandemic, combating pandemic diseases, pandemic preparation policies

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Introduction

Persisting worldwide, the COVID-19 pandemic results not only in major public health concerns, but also in several social and industrial issues in economy, labor, education, and many other fields. In this context, the epidemic continues to take a negative hold. Due to, amongst others, the increasing and aging population, improper urbanization, irregularities in income distribution worldwide, increased resistance to antimicrobial agents, global warming and climate changes, intrusive approaches to wildlife, the epidemiology of infections is undergoing a worldwide change and new infectious diseases are emerging, some of which pose a threat of outbreak, even pandemic. Therefore, different policies should be adopted against outbreaks both on a national and global scale.

An “Institute for Infectious Diseases and Epidemics” should be established very urgently within TUSEB (Directorate of Health Institutes of Turkey). Actions that attach importance to the “One Health” approach should be taken throughout the country. The efforts to take structural measures that will work in case of epidemics, to raise qualified manpower in medicine and to achieve the required capacity of vaccine and drug production along with rapid diagnosis and advanced analysis in epidemic situations should be maintained consistently. During the outbreak, further actions should be taken for potential issues in social life, economy, labor, education, agriculture, and other fields. To achieve these goals, specific policies should be set, and an advanced cooperation should be established between the World Health Organization and other concerned international organizations by ensuring the integrated operation of institutions within the country. Infectious diseases have always posed, are posing and will continue to pose a problem for humanity. The COVID-19 pandemic is the last example of this.

COVID-19 is an infectious disease induced by SARS-CoV-2, which has today resulted not only in major public health concerns worldwide, but also in several

social issues in many fields (economy, education labor) (Huang, Wang, Li, Ren L, Zhao, Hu Y et al. (2020).

On December 31, 2019, China reported some cases of respiratory diseases with unknown causes present in Wuhan of Hubei Province to the World Health Organization (WHO). WHO announced on January 7, 2020 that the disease causative agent was a novel coronavirus, and initially named it 2019-nCoV. On January 9, 2020, the Chinese scientists identified the virus (Zhu, Zhang, Wang, Xingwang, Yang, Song (2020). The virus was later named SARS-CoV-2, and the disease COVID-19. On January 11, the disease turned into an epidemic and the first death was reported. WHO declared this outbreak a Public Health Emergency of International Concern on January 30, 2020 (Baek, Sohn, Mahgoub, Hage (2020); WHO, Rolling updates on coronavirus disease (COVID-19, 2020).

The disease spread all over the world in two months, and the World Health Organization (WHO) declared this event a pandemic on March 11, 2020 (WHO, Rolling updates on coronavirus disease (COVID-19, 2020).

In our country, the Ministry of Health started to act against this epidemic very early and established a scientific committee two months before WHO's declaration of pandemic on January 10, 2020. In addition, the Ministry provided the necessary facilities for the committee to operate properly.

The national pandemic plan that is updated annually on a national scale due to the flu was updated with the necessary preparations in place at the provincial level, which has been one of the cornerstones of achieving preparedness for the outbreak (Turkish Ministry of Health, National Preparedness Plan for Pandemic Influenza, 2019).

Today, COVID-19 cases worldwide have exceeded seven million, with the associated deaths more than 400 thousand (World Health Organization. Coronavirus disease (COVID-19) Situation Report – 145, 2020; Worldmeter. COVID-19 Coronavirus Pandemic, 2020).

Virus was understood to be transmitted from one person to another by droplets or contact or, in some specific cases (in procedures generating aerosols), by airborne means. In addition to intrafamilial transmission, the critical ways of transmission are related to public places, social relationships, and infected healthcare professionals (Zhai, Ding, Wu, Long, Zhong, Li, 2020).

The infiltration of the outbreak was delayed through the proactive measures taken on a national scale; congestion in hospitals was avoided by providing quality healthcare services as enabled by the cases identified through effective contact tracing as well as by successful hospital management; and Turkey managed to be one of the countries with a low case fatality rate (2.8%) thanks to effective and early therapies (Turkish Ministry of Health, Latest situation in

Turkey, 2020). During the process, quality healthcare services were maintained without congestion in hospital services.

Having demonstrated a fast and effective management by taking into consideration the suggestions of the scientific committee, The Ministry of Health provided continued coordination with the relevant governmental bodies and managed to handle the process effectively and efficiently by informing the public regularly. Healthcare professionals who worked devotedly with a team mentality during the pandemic play a great role in this achievement. Considering the examples in the world in this process, the relatively low rate of disease transmission to healthcare professionals is another aspect achieved by our country.

The outbreak affected and continues to affect communities and various industries in our country and the world. COVID-19 took hold of the world widely with devastating consequences for national health systems and the global economy, where the aftershocks of this impact will become more apparent over time. Since the efforts in healthcare delivery are necessarily driven by the outbreak, adverse effects on the health of patients other than those who need immediate care will be identified in more detail over time. This process reveals the need for studies on how negatively oncological diseases and other chronic diseases (diabetes, hypertension, chronic lung/heart/liver/kidney diseases, rheumatologic diseases and specific hosts (immunosuppressed patients), which require regular monitoring, are affected. Additionally, the exposure of the primary healthcare services to such effects is another important aspect that should be investigated.

Apart from health issues (associated with physical inactivity) resulting from isolation and quarantine measures taken in the process, social and psychological effects are the other objects of research. The immobilization resulting from hospitalization and bed rest and the physical inactivity caused by continued quarantine and social distancing pose the risk of adversely affecting the immune system, which provides resistance to infection, and respiratory, cardiovascular and musculoskeletal systems and the brain and other systems (Woods et al., 2020).

Apart from the medical field, COVID-19 has very considerable impacts at all levels from education to public and private sectors and economy. Telecommuting and rotating work that will deeply affect working procedures in the public and private sectors and distance learning, including grading, in education, are some of the most key aspects exposed to modifications and issues during the outbreak.

Additionally, the effects of restricting international and national travels, shutting down borders, closing down schools and businesses and social and cultural establishments and ultimately home quarantining half of the world's population seasonally and for a specific long time (months in China) are important.

There have been considerable exposures at the national and global level, including those not mentioned above. The outbreak still persists in our country and worldwide, and approximately 100 thousand cases are seen every day (Worldmeter, 2020; Johns Hopkins University - JHU, 2020). Amongst others, Russia, Brazil, India, Peru, and Chile are the countries where patients continue to increase in number. In case of failure to make available an effective vaccine and/or highly effective antivirals or if the virus is not mutated considerably with weakened virulence, the impacts of the outbreak are presumed to continue for a further 1-2 years. Even if the COVID-19 outbreak is eliminated, the world is under the threat of other outbreaks/pandemics.

Above all, the “changing epidemiology of infectious diseases”, which started to be noticeable many years ago and which we tried to put on the agenda of our country, includes different factors that will foster new outbreaks (Öztürk, 2008; 2009).

Some of the different types of infectious diseases (plague, malaria, tuberculosis, cholera, typhus, etc.) that severely affected civilizations and even caused their downfall are still important today. In the early 1900s, over 50 percent of deaths in the world were linked to infections, and tuberculosis, pneumonia and diarrhea alone caused about 30 percent of all deaths. Infections could be reduced especially in the developed countries due to the increasing number of antibiotics that were used since the 1940s, the diversification of antiparasitic, antifungals and antivirals over time and their expanding spectrum, better accommodation and nutritional conditions becoming widespread, increased safe food and water facilities, the possibility of immunization against different diseases, and measures such as improved hygiene and sanitation, where some of these infections could be eradicated (Cohen, 2000; Öztürk, 2009).

In consequence of the confidence generated by this success, infections appeared to follow an upward trend due to the decreasing interest in infections, the issue of increasing resistance against antimicrobials, the less importance attached by the industry to the development of antimicrobial agents (especially due to the improved resistance), the reduction/pollution of water resources, interrupted food safety chain, global warming and climate change, etc. (Cohen, 2000; Öztürk, 2009; Öztürk & Şen, 2017; Rossati, 2017).

Based on WHO's data, infections still account for 20-25 percent (12-13 million/year) of death causes worldwide regardless of major advances in diagnosis, therapy, and protection. The most common causes of death are pneumonia (3.5 million), AIDS (1.5 million), diarrheal diseases (1.5 million), tuberculosis (1.5 million) and malaria (0.6 million) (Öztürk, 2009). For the COVID-19 pandemic, the number of deaths in laboratory-verified cases alone exceeded 400 thousand (Worldmeter, 2020).

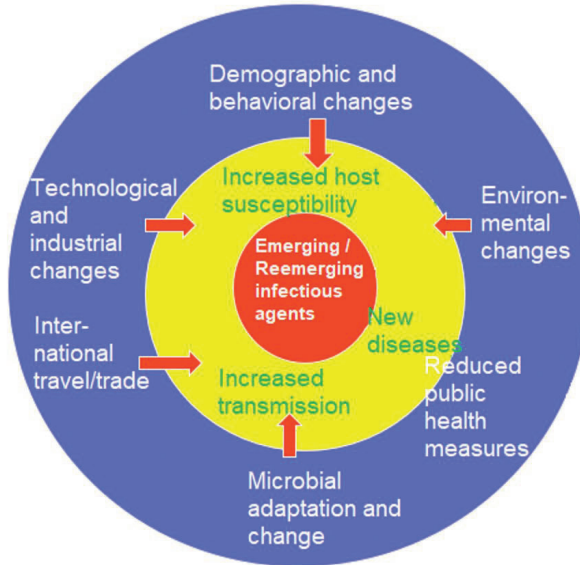
The emergence of measles outbreaks and associated deaths in several countries where vaccine hesitancy is effective is another major threat to public health (WHO, More than 140,000 die from measles as cases surge worldwide, 2019).

Legionnaires' disease, Lyme disease, *Escherichia coli* O157: H7-induced hemolytic uremic syndrome, *Vibrio cholerae* O139-induced cholera, human immunodeficiency virus (HIV) infection/AIDS, hepatitis C, hepatitis E, *Cryptosporidium* and *Cyclospora* infection, mad cow disease (bovine spongiform encephalopathy (BSE) / "variant" Creutzfeldt-Jakob disease), Nipah virus, hanta virus, different hemorrhagic fever (Crimean-Congo hemorrhagic fever in our country), Dengue fever, Chikungunya fever, SARS, bird flu, MERS-Coronavirus, Ebola disease and Zika fever are the first things that come to mind among other new agents or infectious diseases. It is not yet known exactly how effective the SARS-CoV-2 infection will be. Besides the emergence of these new diseases, the recent exposure to old diseases, such as tuberculosis and classical cholera (in South America and Africa), witnessed at a considerable level draws attention to the changes in human ecology (Öztürk, 2008; 2009; Keshvardoost et al., 2020).

The epidemiology of infectious diseases undergoes some changes for several reasons; the infectious etiology of some critical diseases is discovered, and new agents and infections are identified or some of the infectious diseases that have ceased to be significant are gaining prominence again. Infectious diseases pose a threat even to the developed countries that managed to eradicate some infections and reduce others significantly (Öztürk, 2009).

The pandemic potential inherent in some of these infections, as in the case of COVID-19, entails being always prepared and equipped against infections across the world. Community- and hospital-induced infections change epidemiologically and give rise to new problems due to the increasing aging population, increasing large cities (crowded life, poor health care), global climate change, increased level of international travel, global production and distribution of food and food products, migration, wars and other disasters, increase in invasive medical practice and prosthesis use, increase in transplantation practices, adaptation of and changes in microbes (changes resulting from mutation), proliferation of antimicrobial-resistant microbes and pesticide-resistant vectors, substantial alterations in human behavior (unsafe sexual intercourse and sexual behavior changes, alcohol and intravenous drug dependence), attempts (hunting for different purposes, using as food, making use of different products, etc.) intended for the groups of different wild animals (primates, bats and rodents, etc.), biological epidemiological changes and new problems occur in community and hospital-acquired infections due to attempts for rodents and etc. (for different purposes: hunting as food, using different products...), biological terrorist threat, etc., and it is feared that these problems will reach dimensions that threaten public health at an uncontrollable level (Öztürk, 2008; 2009; Butler, 2012; McMichael, 2015; Wu et al., 2016; Öztürk & Şen, 2017) (Figure 1).

Figure 1. Major causes of the changing epidemiology of infections



Source: (Öztürk, 2008)

In fact, a fear exists that smallpox which was eradicated from the world may again threaten the world in the context of the bioterrorist threat (Öztürk 2009). WHO warned that infectious diseases are now spreading faster than before (Öztürk, 2009).

Infections are rapidly changing in terms of scope, location, and frequency; human and animal movements and travels and migrations result in the rapid spread of this change to the world (Öztürk, 2009). In fact, countries started to restrict travels as initial measures, followed by the closure of national borders high on the agenda, due to the considerable impact of international travels and relations on the COVID-19 pandemic. Likewise, our country took similar measures early.

In this regard, it is required to make the necessary policies at national and global level, to take strict measures in several aspects and to promote research projects and innovative studies since infectious diseases have the potential to persist increasingly in the community and healthcare institutions and even to result in major outbreaks and pandemics, as seen in the case of COVID-19 today (Öztürk, 2009; Igoe & Chadwick, 2020).

What to Do Against the Outbreak and Other Common Infections

The COVID-19 pandemic, which has been effective for about 6 months, demonstrated that public health is potentially under a global threat of infectious diseases. For the reasons discussed above, the changing epidemiology of

infections amplifies the risk of epidemics increasing and some outbreaks turning into pandemics. Therefore, countries should attach importance to the fight against epidemics in their national policies, and the countries of the world should enhance and intensify the mechanisms to ensure sustained cooperation to combat the globalized issue of infectious diseases (antimicrobial resistance, healthcare-associated infections, pandemics, etc.).

To that end, we will summarize the policies to combat outbreaks in the short, medium, and long term and the suggested actions to implement these policies, under several topics below.

Above all, the policies to be set in consideration of the multi-faceted and widespread impacts of outbreaks throughout the country and even the effect of health, which is becoming strategically more important in the international arena, on relations should be treated at the highest level by the national government and should be based on between the concerned institutions.

Establishment of “Institute for Infectious Diseases and Epidemics”

An “Institute for Infectious Diseases and Epidemics” should be founded very urgently within TUSEB (Directorate of Health Institutes of Turkey) which was established in our country.

The institute to be established should have advanced reference laboratories equipped with appropriate physical infrastructure and modern instruments and equipment and bring together the most competent scientists and researchers of the country in a multidisciplinary composition. Molecular microbiologists, virologists, infectious diseases specialists, public health specialists and epidemiologists, bioinformaticians, parasitologists, biomedical engineers and other concerned specialists should participate and work in this institute.

For epidemic diseases (community-induced and healthcare-associated) and potential epidemics/pandemics, the said institute should conduct advanced studies on infectious diseases that will escalate due to global warming and climate change, by engaging in diagnosis (immunological (antibody/antigen), molecular and cultural (viral, etc.) analyses, advanced molecular analysis (whole genome analysis, phylogenetic analysis, etc.), vaccination studies, antimicrobial agent development studies and activities of monitoring and identifying the biological warfare threat (Öztürk, 2009).

Additionally, the said institute should focus on vaccine production studies, and primarily achieve the physical structure, technical equipment and manpower that can employ various production techniques and technologies.

On a national scale, vaccine production, for which certain steps are taken and several studies are carried out, is highly important for epidemics. We must decisively resolve, at a national level, the issue of vaccine production that has

been a strategic product today. Vaccine production should be considered in terms of the future of the nation, not in terms of profit and loss, with focus on its considerable contributions to public health regarding vaccine-preventable diseases and its potentially crucial protective roles in a threat of biological warfare. Awareness should be raised in this respect by ensuring the sustained production of some vaccines, for which various studies are currently carried out, and the domestic use and export, if possible, of such vaccines. International collaborative actions may bring benefits to vaccine production, where necessary.

Apart from vaccines, antimicrobial drug production should be taken into consideration simultaneously. A policy should be developed to enable the country to synthesize new molecules and identify the means of rapid production and supply of existing drugs within the country. To this end, it will be beneficial to develop international partnerships.

In addition, the said institute should carry out innovation studies to avoid infections throughout the community and health institutions.

Air Conditioning Efforts to Avoid Airborne Transmissions

Given that the vast majority of pandemics result from respiratory tract conditions, there is a need for policies that attach importance to ventilation/air conditioning systems and support innovative approaches.

Particularly, the ventilation systems which will prevent (airborne) transmission by droplets and droplet nuclei should be properly installed and regularly maintained at hospitals (polyclinics/clinics, operating rooms, intensive care units, etc.), shopping malls, nursing homes, disabled care units, places where other crowded communities gather, and organizations providing community services to meet the related needs, and the efforts for innovation should be maintained in this respect by adopting an innovative approach. In addition, the periods of use and maintenance should be considered, starting from the construction project of ventilation systems, and energy consumption, filter replacement and other technical aspects and costs should be accounted for in terms of maintainability.

In this regard, the Ministry of Health should work in coordination with the related entities, and set standards for ventilation, where R&D activities that will ensure the continuous improvement of these standards should be sustained through university-industry cooperation, and the necessary policies should be determined for this purpose.

Efforts for Quality Personal Protective Equipment

Policies that attach importance to the production of personal protective equipment by innovative approaches are one of the key aspects in this context. This pandemic process clearly demonstrated that personal protective equipment became a widespread social requirement in outbreaks, especially for

healthcare personnel. Many countries suffered setbacks in the supply of masks and other personal protective equipment. It is important to ensure production aligned with the standards set in this field, and to develop a health policy that will attach importance to continuous development through innovations in this respect.

Manufacturing the materials (masks (surgical, N95-/99-type and equivalent, face shields, protective goggles, waterproof coveralls, etc.), which are most frequently used in case of potential outbreaks, at the given standards should be promoted. A system designed to audit the standards for and to validate materials should be established. The infrastructure should be established at institutions to test the conformance of N95-type and equivalent masks. The planning for potential epidemics should secure the fulfillment of national needs, and exports and international aids should be considered when setting the production capacity. R&D and innovative activities dealing with personal protective equipment should not be neglected.

Medical Device Manufacturing

The other key element of R&D and production is medical devices used in outbreaks. In this context, a system that will audit the standards for and validate laboratory diagnostic and research devices (molecular/immunological etc. diagnosis and research) and respiratory support devices (ventilators, etc.) should be established, and activities that can meet the needs in this respect with an understanding of R&D and innovative production should be carried out.

Annual Revision of National Pandemic Plans, Conduct of Pilot Practices, and Focus on other Public Health Protection and Improvement Measures

The National Pandemic Plan, which has been sustained for many years in our country, should be extended to include potential pandemic agents along with the flu, and should be revised every year by the relevant scientific/advisory committee. The related practices should be adopted in a controlled manner at the provincial level.

The health management system should place more emphasis on preventive medicine and pro-public health understanding along with hospital administration. During the COVID-19 outbreak, the great support contributed by private hospitals in the process should be investigated. The policies that allow such hospitals to play a role in future outbreaks should be developed, and the organization of the said hospitals should be adapted accordingly. The national vaccination program for adults such as successful child vaccination should be extended, accompanied by the efforts to prevent the negative impact of anti-vaccination activities.

Development and Application of “One Health” Policies

“One Health” may be defined as the collaborative efforts of many disciplines collaborating on a local, national, and global scale to achieve optimal health

for people, animals, and environment. Zoonotic diseases continue to be a key problem regardless of gradual expansion of the framework of the One Health approach. The most important goals of “One Health” include understanding the dynamics of zoonotic diseases, implementing integrated monitoring systems, and developing preventive strategies (Amuasi et al., 2020; Trilla, 2020; Falkenberg, 2020).

The basic understanding should be a multidisciplinary effort for the “One Health” approach between the Ministry of Health, the Ministry of Agriculture and Forestry and other ministries. For years, warnings continue to be issued regarding the pandemic risk caused by zoonotic diseases, i.e. infections from animals to humans or humans to animals. Considering that 50-60% of infectious diseases in humans are zoonoses, it becomes apparent how appropriate this warning is (Öztürk, 2008; Falkenberg, 2020). It should be remembered that zoonotic diseases usually emerge in wildlife populations and farm animals serve as intermediate hosts before they infect human populations. To that end, integrated monitoring systems that provide faster response to epidemic situations should be developed. Outbreaks may be identified better and responded to faster by combining the data collected by monitoring humans, livestock, and wildlife in an integrated system. To achieve this, a “One Health” approach driven by human, animal and environmental health should be adopted at the national level, and international relations should be developed in this regard. The requirements of the “Tripartite Collaboration Agreement” executed between the World Health Organization (WHO), the World Organization for Animal Health (OIE) and the Food and Agriculture Organization (FAO), which aims to prevent and manage zoonotic diseases and their economic, social and medical effects, should be followed and the efforts exercised in this respect should be sustained. It is a fact that zoonotic diseases will not disappear after epidemics. To this end, the question of when and where the next epidemic will break out and how to set up effective early warning systems and how to develop rapid response strategies should be investigated, and international collaboration should be provided with this goal in mind (Falkenberg, 2020; Trilla, 2020).

The “One Health” conception, which defines human, animal and environmental health as closely interrelated and interdependent, should take up more space on the agenda of the academic world, with further focus placed by curricula on this subject. Close collaboration should be established between the related scientific disciplines, and joint research activities should be carried out by the academy. There is a need for policies to prevent cross-sectoral conflicts, lack of funds and power imbalances that may arise when implementing the “One Health” concept (Falkenberg, 2020).

Keeping biological diversity balanced in the world has benefits that are known or not yet known, other than attaching importance to life of living beings. The main cause of the outbreak of zoonotic disease-induced epidemics is closer contact between humans and animals than ever before. The growth

of the human population and the global economic development result in an increased demand for food, especially animal proteins, giving rise to more intensive farming. Other causes include the expansion of human settlements and agricultural areas and the extraction of various resources. In all these scenarios, people enter the natural habitats of wild animals, and increase the contact between wildlife, livestock, and humans. Wild animals seeking food are forced to live closer to human settlements, as their natural ecosystems and habitats are destroyed. Zoonotic diseases are transmitted to humans while hunting and eating these animals and making use of their different products. We are living in a globalized world where live animals, animal products and goods are circulated and traded freely across borders and continents (Qian et al., 2020; Falkenberg, 2020). The market selling wild animals in Wuhan of China was associated to the initial cases of COVID-19. While conflicting data about this association were presented, there is a high risk of potential outbreaks originating from places where these and similar wild animals are sold in terms of zoonotic diseases.

In this context, it is important to resolve problems worldwide. Intervention in the natural life should be avoided across the world. The markets trading animals that are hunted by intervention in the natural life should not be allowed in any country in the world, and WHO should constantly monitor the existence of such markets. Consequently, the mechanisms should be provided not to let the parties, who hunt or sell wild animals in the markets by intervening in their habitats, suffer economic losses or to supply the food that they need. Introducing a ban without achieving this will cause the process to be carried on illegally/ through black markets. Since infections/outbreaks cause greater problems in low-income countries, it becomes clear that a fairer income distribution in the world will have positive effects on the prevention of outbreaks (Qian et al., 2020).

The current COVID-19 pandemic revealed the criticality of zoonotic diseases, early detection of the outbreak and development of global early warning systems; this is the only way of preventing a zoonotic disease from turning into an outbreak. The “One Health” approach gives an integrated, interdisciplinary insight into the dynamics of zoonotic diseases and enables us to set critical indicators and develop preventive strategies. Additionally, “One Health” may seek a solution to the wrongness and destructiveness of urbanization policies developing at a “pathological” rate by destroying agricultural lands. It is possible to create synergy by integrating food safety, safe water supply, hygiene, public health, health systems and public relations in this context (Qian, 2020; Falkenberg, 2020). Therefore, the “One Health” approach should be adopted and implemented more rapidly locally, nationally, and globally to make the world better prepared to identify and fight the next zoonotic diseases.

Maintenance and Improvement of Relations with WHO and Other International Organizations

Maintaining and improving relations with WHO, ECDC and other international organizations is important for preparedness for potential future outbreaks. The efforts which will allow our country to be more active in WHO should be prioritized. Particularly, policies are needed to enable WHO to assess outbreak threats more rapidly and to be involved more actively in the process.

WHO faced different accusations during this outbreak and earlier outbreaks. Some of these accusations might be true. However, outbreaks/pandemics can only be overcome through global collaboration in today's world. The necessary means should be provided for WHO to eliminate its shortcomings/mistakes and serve as an international leader in epidemics. WHO should transparently fulfill a task that will monitor and control the issue of biological warfare/terrorism worldwide.

WHO should work on early warning systems which will identify outbreaks in a country at an early stage, analyze the circumstances posing an epidemic risk, and establish and support teams that will aid the relevant countries in proactively controlling outbreaks posing the risk of global spread (Qian et al., 2020). In a country with actual cases of outbreak, efforts should be used to adequately control the outbreak and to clearly share actual and updated data, progresses, doubts and problems with the rest of the world. Policies that will ensure this transparency should be developed with an international common understanding (Trilla, 2020).

Focus on Medicine and Other Health Sciences

The COVID-19 process will have consequences on teaching, research, and internationalization in all aspects of higher education (Witze, 2020). Consequently, medicine and other health sciences will be affected by this process similarly.

A high-quality hands-on training on infectious diseases and epidemics should be provided in medicine, pharmacy, dentistry, nursing and health sciences in a way resulting in the acquisition of knowledge, skills and attitudes. An interdisciplinary relation should be established before and after graduation, and infectious diseases and epidemics should be one of the major subjects of postgraduate education. For postgraduate education in health sciences, emphasis should be placed on issues related to outbreaks. Adequate epidemiologists should be raised.

Preparedness for the Management of Pandemic Process in Non-Medical Fields
The relevant organizations should monitor the adequacy of preparedness for issues (distance education, telecommuting, etc.) which always require preparedness in consideration of the effects of the COVID-19 pandemic on education, economy, and other industries.

Studies should be carried out to eliminate the adverse conditions (immobility, psychological disorders, fear/panic of getting sick, social life disorder caused by lack of physical contact, etc.) resulting from staying at home during outbreaks/pandemics, and visual and written materials should be prepared regarding what regular physical activities to do and how to do, including for the elderly, during the stay at home (World Health Organization – WHO, Healthy At Home, 2020; Wang et al., 2020).

Policies are needed to secure economic issues, such as telecommuting, temporary unemployment and layoffs. Actions should be taken to be prepared for productions available at home during epidemics, and the unemployed population should specifically be supported for this purpose.

Epidemics and disasters should be included in economic policies as well as in budgets, and policies should be set to proactively take economic measures in case of epidemics and pandemics. Additionally, legal preparations should be made for any disputes that are likely to arise in this context.

The news and various shows in visual and printed media, which lead to negativities, should be followed at the beginning and aftermath of the outbreak, and made beneficial by persuasion without causing damage to the freedom of the press. Health literacy should be enhanced in the society about outbreaks, and those working in printed and visual media should be trained to raise awareness about epidemics. Actions should be taken to prevent the issue from deviating from the focus in printed and visual media before and during the epidemic/pandemic threat.

In conclusion, the COVID-19 outbreak, which affects the world in many ways, especially in connection with health, economy, social life and international relations, still persists. Being prepared for other epidemics, along with this outbreak, in every aspect on a national scale requires sustained efforts and studies on problematic areas, especially in health, education, economy, agriculture and animal husbandry. Appropriate policies should be developed and implemented for safe food production, water resources protection and safe water supply, economic development, diversification of livelihoods and fair income distribution, and interrelations between integrity of ecosystems and health, and systematic health policies and strategies integrated with a comprehensive and holistic approach.

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