The Scientific Basis of Incineration of Carcasses and Safe Disposal of Wastes in Farms

19th September 2022

Egypt's Vision for Cop27: The Role of Animal Health in Egypt's National Climate Commitments

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Prof. Maha Ahmed Sabry

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Prof. Manal Mostafa Zaki

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Professor of Animal, Poultry & Environmental Hygiene, Faculty of Veterinary Medicine, Sadat University. Former President of University of Sadat City.

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Director of Regional Branch of the Agency of Environmental Affairs in Ismailia & AlSharqia

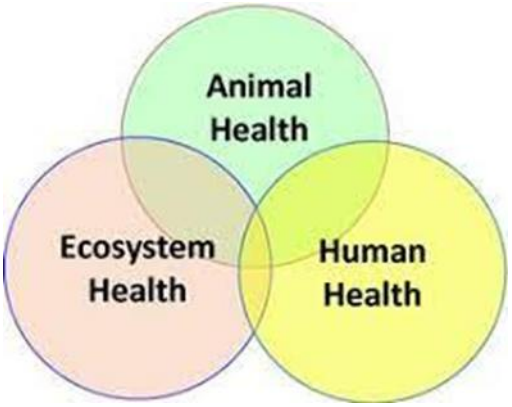
Prof. Sherif Tawfik Moubarak

Dr. Sherif is a Professor and Head of Department of Hygiene and Animal Management, Cairo University Faculty of Veterinary Medicine. He has enormous laboratory and field experience in poultry diagnostic services including serological tests, water and feed analysis, mycotoxin determination, hatchery monitoring, disinfection and disinfectants and biosecurity programmes. He is a Specified Pathogen Free (SPF) eggs Specialist and Consultant. He is FAO Animal Health Expert.

In 2000: Training course during March/April 2000 at LOHMANN TIERZUCHT, Cuxhaven, Germany. 2000 – 2004: Consultant, Quality Control Laboratory, Nile SPF, Koum Oushiem. Fayoum, Egypt. In 2009: Consultant, The Holding Company For Biological Products and Vaccines (VACSERA), Cairo, Egypt. In 2011: Training course on diagnosis of poultry viral diseases, July 2011, at Harbin Institute, China.

Climate Change and the Need of a One Health Approach

Abstract



Climate change adds complexity and uncertainty to human and animal health issues such as emerging infectious diseases, food security, and national sustainability planning that intensify the importance of interdisciplinary and collaborative research. “One Health”, promotes incorporating human medicine, veterinary medicine, public health, and environmental science in a system that can facilitate clearer understanding of climate change impacts on environmental, animal, and human health.

Prof. Maha Ahmed Sabry

Dr. Maha is a Professor and Head of Zoonoses Department, Faculty of Veterinary Medicine, Cairo University. She is an expert of Zoonoses, Epidemiology, Immunology, Molecular biology, and antibiotic resistant pathogens. She is a member of upper committee of Zoonoses (GOVS), College representative in Food and Agriculture Organization (FAO), the WHO's Food Safety Community of Practice (COP), and ISVM (International Society of Viruses of Micro-organisms. She is an associate editor at Asian Journal of Animal and Veterinary Advances, Journal of Biological Sciences, Research Journal of Microbiology, Research Journal of Parasitology, and Research Journal of Veterinary Sciences.

Linkages Between Climate Change and Zoonotic Diseases ; With Reference to COVID-19 Pandemic

Abstract

The greatest threats to human and animal health in this century are climate change and biodiversity loss, especially in developing countries. However, it exposes populations across the world to hazards from pollution, increased food and water insecurity and infectious diseases. Zoonotic diseases are located at the intersection of health, ecosystems and environmental change.

Temperature changes are blamed for the increased prevalence and frequent emergence of novel zoonotic diseases because they prolong periods of vegetation growth and increase the availability of habitat, which in turn encourages the expansion and propagation of zoonotic diseases and their associated vectors in more favorable environments. On top of these vector-borne diseases malaria, dengue fever, leishmaniasis, and Zika virus. Zoonotic pathogens are maintained in an animal reservoir and occasionally or consistently spill over to infect humans. This can occasionally lead to sustained human-to-human or vector-borne epidemics (the severe acute respiratory syndrome coronaviruses (SARS-CoV), Ebola, or plague), but more frequently in endemic or sporadic disease (leptospirosis, Lyme disease, hantavirus diseases).

Several studies in the past have indicated a correlation between previous pandemics and environmental and climatic factors. Since climate changes in the tropics have enhanced the proliferation of zoonotic viral carriers and vectors, which has increased the propagation of viruses from their carrier to animal hosts. Several researches on COVID-19, found an inverse relationship between temperature and humidity and the number of new cases and fatalities daily. On the other hand, research on how temperature and relative humidity affect COVID-19 incidence and dissemination is still ambiguous or inconsistent, with data indicating both positive and negative relationships or, in some researches no relationship at all. Apart from this, it is crucial to predict extreme weather (floods, cyclones, droughts) and be equipped for it, in order to stop the spread COVID-19 and highly contagious diseases.

Asst. Prof. Mahmoud AbdElaty Mahmoud Khalf

Dr. Mahmoud is an Assistant professor**,** Poultry Hygiene and management and Veterinary epidemiology in faculty of Veterinary Medicine, Cairo University. His area of specialization is Hygiene of Poultry and Environment. He is a member of the Egyptian Society of Animal Management and the Egyptian Veterinary poultry Association.

Hygienic Methods of Waste Disposal

Abstract

Animal scientists are more concerned with the sustainable expansion of livestock production systems-whether they are producing meat, milk, eggs, or fiber-than they are with the wastes produced by the livestock business and the animals themselves. Livestock production involves animal mortality, and effective disease control strategies require efficient disposal of these mortalities. Various disposal techniques are employed globally based on the laws that are followed in various nations. Traditional disposal techniques include burying, burning, incineration, rendering, and composting are the most popular in developing nations. These techniques have some environmental, biosecurity, social, and economic problems. Due to the persistence of some infections, these disposal methods have environmental drawbacks such pollution of the air, soil, and water. Social issues with these conventional disposal techniques include the threat of odor and insect infestation as well as water contamination. Like this, the worrisome rise in the price of raw materials like kerosene, diesel, and wood for burning is linked to economic restraints. Other problems include the cost of labor and the availability of land.

Prof. Ahmed Baiomy

Dr. Ahmed was a President of University of Sadat city. He was the Vice Dean of the College of Veterinary Medicine for Education and Student Affairs and Head of the Department of Health and Common Diseases. Previously, Dr. Bayoumi held the position of Vice Dean of the College of Veterinary Medicine for Postgraduate Studies and Research and the position of Vice Dean for Environmental Community Service Affairs.

Impact of Disposal of Dead Animals and Animal Wastes on Environment

Abstract

Animal production sector plays an important role in development of the Egyptian national economy. Not only the developing nations but the developed nations also depend upon their animal wealth for their livelihood and nutrition. The number of farm animals in Egypt is increasing day by day, which is although a positive sign for mitigating the widespread hunger and malnutrition but on the other hand, the growing livestock population is posing a great threat to environment in the form of animal wastes. Governmental efforts are focusing more on the sustainable increase in the livestock production systems whether it is production of meat, milk, eggs or fiber but are least concerned about the wastes emerging out from the livestock industry and livestock itself.

In the event of an animal disease outbreak, such as highly pathogenic avian influenza, foot and mouth disease, or Lumpy Skin Disease, many animals will die of the disease or may be sacrificed to prevent pathogen spread. The carcasses will then require immediate safe management. Carcass management options include onsite composting, burial or burning, as well as offsite landfill, incineration or rendering, if those technologies are readily available. There may be significant biosecurity and environmental risks from carcass management techniques, depending on how they are implemented.

The unconditional use of chemicals in the agriculture and livestock industry has not only raised an environmental concern but also a health concern for the humans. The excretions from the animals have the residues of certain chemicals which are noxious for humans as well as for environment. Further, the excretions of diseased animals may have certain zoonotic pathogens which are very harmful for humans and can remain in soil for several days to weeks. The active compounds in the animal excretions and the effluents erupting from the livestock products and processing industries pose a greater threat to all the components of environment.

Asst. Prof. Eman Mohamed Ismail

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EMAN MOHAMED ISMAIL, Assistant Professor of Veterinary Hygiene and Management (Animal, Poultry, and Environmental Hygiene). A member of the Scientific Committee of Veterinary Medicine Cairo University Institutional Animal Care and Use Committee (Vet. CU. IACUC). And, an assistant coordinator of students' and graduates' files, Quality and Accreditation Ensuring Unit, Faculty of Veterinary Med. Cairo University. She has passed the global classroom of (MIEH 607 course), The risk-based approach to ensure global food safety and security; a collaboration between the University of Maryland, U.S.A, and Cairo University. Also, the First workshop in "Biosafety and bioregulation in microbiological laboratories" in the frame of German- Egyptian project:" Completing 18.5 hours of course on "Laboratory animal science and methods of animal Experimentation", animal welfare in the lab. animal use, FELASA category B, Cairo University, Aachen International University, and AAALAC International association (association for assessment and accreditation of laboratory animal care. Completing "Training of trainers in the care and use of animals in research", held and authorized by FLDC, Cairo University. My research interest is related generally to the animal, poultry, and aquatic hygiene regarding One health approach to disease control in its natural environment. And specifically, Environmental microbiology, eco-epidemiology, ecotoxicology, and biosafety, as well as testing the microbicidal effectiveness of natural and synthetic compounds and nanocomposites.

Impact of recent and future climate changes on disease epidemics and control

Abstract

Climate change (CC) has become a current global concern due to its negative impact on many ecological systems. These changes Not only affect the weather, land Characteristics, land productivity, oceans, and other water resources, atmospheric chemistry, and reflectivity but also affect the occurrence, distribution, and transmission of significant diseases. Recently, the incidence of mosquito-borne parasitic and viral diseases has arisen. Also, climate-related increases in temperature in sea surface and level would lead to a higher incidence of waterborne pathogens, such as cholera and seafood intoxication. The pattern and scenarios of disease occurrence have changed due to the change in distribution and transmission of infectious diseases with warming and changes in outbreaks associated with weather extremes and consequent ecological disturbance. CC affects disease transmission by shifting the vector's geographic range and by shortening the pathogen incubation period. Human migration and damage to health infrastructures from aberrant climate changes could indirectly contribute to disease transmission. The potential effects of different climatic variables on pathogens and hosts population dynamics and distributions are complex to assess and different approaches are used to describe the dynamics in ecological range and the availability of ecological niches for pathogens and vectors. However, even when the linkage between disease dynamics and climate change is relatively strong, there are always other factors also changing disease behaviour and these should be accounted for as well. In conclusion, the consequences of climate change on health are of greater importance whilst being aware that it is at the root of numerous diseases. Therefore, Understanding the linkages between climatological and ecological change as determinants of disease emergence and redistribution will ultimately help optimize preventive strategies.

Prof. Ahmed Samir Mohamed

Dr. Ahmed Samir is a professor of Microbiology, Faculty of Veterinary Medicine, Cairo University. Director of Center of Biotechnology Researches and Services (CBRS), Faculty of Veterinary Medicine, Cairo University. Former Director of Center of Applied Analytical and Veterinary Studies (CAAVS), Faculty of Veterinary Medicine, Cairo University. He is a member of **Animal Resources and Fisheries Researches Council**, **American Society for Microbiology** (ASM), **Reviewer Board for Promotions of Professors and Assistant Professors, Egyptian Society of Microbiology and Immunology**. He is a consultant in **Police Academy (Ministry of Interior)**, veterinary sector and responsible for laboratory activities applied on police dogs and **National Co. for Animal Production (Armed Forces)**, veterinary sector. He is one of the **Specialized Scientific Councils** of the Ministry of Higher Education and Scientific Research. A ministerial decision **No. 582/2015**. and responsible for laboratory activities and the scientific research center.

Principles of Biohazards disposal and application of facility biosafety to cope climate change

Abstract

Despite a greater awareness of biosafety and biocontainment practices, handling infectious microorganisms remains a source of infection, and even mortality among laboratory workers. Incidents of secondary transmission of disease to the public at large, which may be due to possible contamination of the environment or personnel, are also occurring.

Pouring chemicals or any waste into a drain that flows directly into the public water system is not permitted. Wastes and chemicals must be handled locally in the lab or with dilution tanks in or near the building. Local handling is the most affordable approach: the researcher pours the chemical into a specific container that is later picked up by a waste-management staff person or by a vendor. If chemicals are allowed to be poured down the drain, then all the drains must be constructed with chemical-resistant piping, which can be very expensive.

Asst. Prof. Marwa Mohamed Salah El-Din Khattab

Dr. Marwa S. Khattab obtained her bachelor's degree in Veterinary Medicine in 2007. She obtained her master's degree in general, systemic, and special pathology medicine in 2010 and her Ph.D. in 2015. She worked as a demonstrator of pathology in 2007, assistant lecturer of pathology in 2010, and lecturer of pathology in 2015. Her current academic position is associate professor of pathology since 2020. She was a researcher in a university-funded project addressing Low-Cost decentralized Sewage water Treatment and the PI of STDF funded project on the diseases of the skin of importance to the leather industry. she obtained several Certificates of appreciation from Cairo University for publishing articles in international journals in the years 2015, 2017, 2018, 2019, and 2020. She attended and participated in more than 13 international conferences in Egypt, Romania, and Italy related to pathology and nanotechnology. She attended more than 34 training courses in the Faculty and Leadership Development Center, and Faculty Assessment and evaluation unit in addition to workshops on hazard analysis and critical control point (HACCP) system, 1st CL Davis Middle East Division Symposium on Pathology of Domestic and Laboratory Animals, image analysis, Advanced Techniques in Molecular and Pathobiology, Immunohistochemistry, In situ hybridization, and Electron Microscope Uses and Applications. She published more than 37 international publications indexed in Scopus.

Climate change possible influences on animal tissue health: Hygienic disposal

Abstract

Climate change poses a significant health risk on humans and livestock. The extreme weather changes like heat waves, severe droughts, extreme precipitation events, and coastal floods can influence the human and animal health either directly or indirectly. The direct effect of climate change is mainly due to the increased frequency and intensity of heat waves causing heat stress. Ultimately the heat stress results in metabolic alterations, oxidative stress, immune suppression, and finally death of livestock. The indirect effect of climate change is mainly due to changes in quantity and quality of feedstuff, drinking water and survival and distribution of pathogens and/or their vectors. Therefore, climate change induces a deviation in the pattern of diseases and behaviour of animals urging further study for correlation. Global awareness of the drawbacks of climate change should be followed by a decisive action in the mitigation and adaptation to these changes. The sustainable management of the world's natural resources and agricultural systems became a must to overcome the climatic changes and the greenhouse gas effect. The Improvement of animal health reduces emission intensity and enhances resource use efficiency by reducing mortality, and improving productivity and fertility. Also the proper disposal of dead animal by an environmentally sound methods became today's environmental climate call.