

PROPOSAL FOR THE STRUCTURE OF *ONE HEALTH* EUROPEAN MEGA-PROGRAMME

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Abstract

The authors of the present paper are submitting, for the first time, the proposal to endorse, organize and run a European mega-project for the implementation of *One Health* concept in the above-mentioned space, under the coordination of FEAM, relying on the experience of Romania and the Netherlands as fully-fledged pilot stations of *One Health* implementation, alongside other European academies of medicine willing to join this initiative.

It goes without saying that the great beneficiaries of this enterprise would be, on the one hand, the citizens of the European Union, and on the other hand, the living environment as a whole, together with its biotic and abiotic factors.

Key words: One Health, European mega-programme, comparative medicine, primary prophylaxis of life in its biodiversity

I. One Health Concept

One Health concept, *Health for People* and everything else that surrounds them, namely Animals, Living Environment as well as everything else that conditions them, Foods and Nutrition and the Occupational, encourages the collaboration, synergies and cooperation of all professional sectors and human actors, in general, whose activities may have an impact on our civilian and military health.

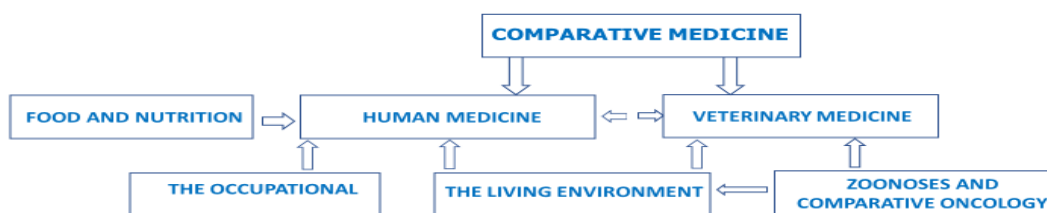
One Health concept involve embedding the endeavours and achievements of *Human Medicine, Veterinary Medicine, Environmental Medicine, Food and Nutrition Medicine, Occupational Medicine, Comparative Medicine (zoonoses and comparative oncology)* with the *PRIMARY PROPHYLAXIS OF LIFE in its biodiversity promoted as a major*

vector, and translating them into medical practice, at the service of the following health desiderate: the best possible health at the lowest costs.

In essence, this concept involves two essential issues:

1. it organizes, for the first time, the primary prophylaxis of life within the biodiversity on Earth and regards various human and animal diseases by means of taking into account the living environment;

2. considering that international specialists today agree upon the fact that more than 75% of the diseases originate in the animals around us, as well as in the surrounding living environment, it is necessary that each and every patient be should examined not as it has been done until now, in strict relationship to his illness, but within a large framework that requires applying the diagram below:



This new mode of thinking and interpretation cannot be immediately implemented, but society, as a whole, and specialists, in particular, must be constantly informed on and trained in this new field, which addresses each and every citizen of the human community. It must be gradually introduced from kindergarten, and then continued through out elementary school, gymnasium, high school and post-high school education, college and post-college education, including doctoral and post-doctoral studies.

The research will go hand in hand with the most subtle paths of microbiotechnology and genetics, alongside the domain of informatics.

Medical procedures based on evidence from complementary medicine (Chinese traditional medicine, phytotherapy, gemmotherapy, etc.) should be integrated to serve the same purpose, namely that of achieving *good health in humans* through the most efficient techniques at the most reduced costs. To all these, we have to add all aspects connected to food safety, the manufacturing of medicines and pharmaceuticals, including bio products (vaccines)

II. Objectives

The main objectives of the implementation of the very Concept are:

- a healthy person should not get ill and enjoy life to the fullest;
- a suffering person should to restore his/her potential and comfort as much as possible;
- the reduction of *per capita* costs for Health, in contrast with the increasing virulence of biotic pathogenic inducing factors, as well as the increasing aggression of factors such as climate changes, population movements;
- increasing the performance and balance of the individual, in general and in particular, at work and in everyday life;
- providing for and supporting the manufacturing of medicine and the high-tech medical equipment industry as part of *One Health* concept;
- the wide-scale introduction of nano-biotechnologies as well as classical biotechnology in the areas of competence of One Health concept.

These are valid for both civilians and soldiers, including those in theatres of operations.

III. Directions for action

The following important directions underpin the promotion and implementation of the Concept:

- the creation of a collaborative platform for all professional sectors and human actors, in general, whose activities may have an impact on health;
- the education of the individual who must come to a new awareness regarding his/her life and the relationship with everything that surrounds him/her;

- the elaboration and implementation of new National, European and World Regulations apt to efficiently support the implementation of the Concept, including the military life as well;
- the inclusion of the profession of "SPECIALIST IN ONE HEALTH" in the classification of occupations in Romania.

IV. Challenges

The major challenges facing the Concept promotion and implementation are:

- the accomplishment, in a record time, of the currently neglected element both in Romania and worldwide, namely the general prophylaxis of diseases in humans, animals and living environment, of food and occupational safety, through adequate structures and legislation;
- the development and promotion of patentable Procedures and Techniques that bring together the synergies of the founding domains of the Concept;
- the Information and Education of the Population, an Academic Curricula appropriate to the Concept and Complementary qualification of the civilian and military medical professionals.

DEVELOPMENT OF THE CONCEPT

The concept, under various forms, dates back to antiquity. The Greek physician Hippocrates (460 BC - 370 BC) acknowledged the fact that environmental factors may have an impact on health and promoted the concept that *public health depends on a clean environment*.

Later on, the Italian physician Giovanni Maria Lancisi (1654-1720), a pioneer in the field epidemiology and a veterinarian, laid emphasis on the role played by the physical environment in spreading diseases to humans and animals.

The usage of *One Health* concept, in its full form, was recently established in connection with Ebola, the haemorrhagic fever, by William Karesh in 2003, who claimed that: *"Human, domestic animal or wildlife health can no longer be discussed in isolation. There is only one health. And solutions require that everyone should work together at all different levels."* Together with two colleagues, W. Karesh subsequently held a series of conferences around the world on the theme of One World - One Health.

The United States of America

In 2008, the *American Medical Association* (AMA) and the *American Veterinary Medical Association* (AVMA) agreed to merge into *One Health Commission*. On the other hand, *One Health Initiative* is the website that stores news and information regarding *One Health*. The promotion agencies, namely, *American Medical Association*, *American Veterinary Medical Association*, *The American Society of Tropical Medicine and Hygiene*, *The American Association of Public Health Physicians*, *The Centers for Disease Control and Prevention* (CDC), *The United States Department of Agriculture* (USDA), and the *U.S. National Environmental Health Association* (NEHA) and more than 800 prominent scientists, human doctors and veterinarians from around the world (from about 90 countries, including Romania) have joined the initiative.

In fact, in the United States, a coordinating *One Health* Coordinating Organization will soon be established, as a recognition of the importance and breadth of the initiative.

At International Level

In 2011, *the first International One Health Congress* was held in Australia, and in 2013, *the second International One Health Congress* was held in Thailand.

In May 2015, *the first Global One Health Congress* was held in Madrid, where the outstanding performance of the Romanian delegation was thoroughly appreciated.

As a confirmation of its contribution to the Concept Development, Romania organized the *One Health European Inter-regional Conference* in 2016, in Bucharest, Romania as well as the *One Health National Conference* in 2017, in Târgu Mureș. Romania will also organize *The Second European Conference 2019*, in Bucharest, Romania.

The implementation of *One Health Concept* must become a national security objective for the society's balance and proper functioning, for life as a strategic priority, since this action is currently being addressed frontally in the US and now in the European Union as well.

As a confirmation of the importance of *One Health Concept* under the pressure of the acuteness of the situation, *the United Nations*(UN), *the World Health Organization* (WHO), *the World Organization for Animal*

Health (OIE), the Food and Agriculture Organization (FAO) require multi-sectoral measures and adopting the new One Health Concept as a programmatic directive.

The European Union

Since 2008, the European Union has promoted *One Health* approach and the concept has become part and parcel of some European Union strategic documents.

- *One Health* was a unique topic on the agenda of the annual session of the Federation of European Academies of Medical Sciences, a session organized in Bucharest by the Academy of Medical Sciences of Romania in May 2014 when *One Health* was decreed as a major goal ;

- Remarkably, in Romania, components of the concept, with special reference to the comparative medicine of the human and veterinary environment, have developed as European priorities. Moreover, at the end of 2017, the European Commission launched the "European *One Health* Action Plan Against Antimicrobial Resistance(it is estimated that in the coming years Antimicrobial Resistance will become a greater threat than cancer or the 2008 financial crisis) in the Human-Animal-Environment Interaction Plan having as precursors:

- the World Health Organization(WHO)Plan regarding Antimicrobial Resistance from 2015;

- the United Nations Declaration from 2016 on Antimicrobial Resistance;

- adopted later by *the World Organization for Animal Health (OIE), the Food and Agriculture Organization (FAO)*;

- addressed in the Group of 7 and Group of 20 forums.

The great challenge facing us, is to achieve, in a record time, in Romania, the GENERAL PROPHYLAXIS OF THE DISEASES IN HUMANS, ANIMALS AND THE LIVING ENVIRONMENT, OFFOOD AND OCCUPATIONAL SECURITY, through appropriate structures and legislation.

V. Launching the European One Health Plan in tendedas a collective action for sustainable and predictable health

Romania proposes the launching of the European *One Health* Program as a special contribution by means of the effects it can trigger:

- preliminaries for a sustainable and predictable life, with the growth of well-being and contribution to social peace;
- major economic effects together with increasing the active potential of each and every person and reducing health and social insurance costs.

Sectoral Programs regarding Health, Living Environment and Nutrition have been developed and run under the aegis of European and world organizations. There has never been launched such an extensive program as the one proposed by us, aimed at intersectoral synergies meant to find the roots of disease progression and spreading, and to recommend appropriate solutions in domains where human health is increasingly assaulted.

Europe can become, in this domain too, an example and a flagship for the entire world regarding its innovative and effective solutions.

VI. ARGUMENT

Worldwide, there are ever growing health challenges, more and more diseases with uncontrolled developments and super-intelligent antibiotic-resistant bacteria caused by:

- the accelerated climate changes that can lead to a Mediterranization of the Northern European region;
- the population movements as a result of globalization and military conflicts;
- the population growth, the lack of caution in using harmful technologies;
- the unhealthy food and excessive medication.

Within this context, launching a global *One Health* program that targets the interaction of all areas that affect health is likely to remove the most unknown factors, at low-costs, but with major human and material benefits.

VII. The Romanian contribution

Against this background, the Academy of Medical Sciences, through the contribution the Comparative Medicine Department, has evinced it self as active and innovative *actor* in Europe in the domain of implementing and promoting the concept, with international recognition, and that is the very reason why the Federation of European Academies

of Medicine (FEAM) has mandated it to promote the respective concept in Europe.

Projects of national and international interest are in progress, drawing from the Romanian expertise platform meant to solve the acute health problems of society: antibiotic resistance (the great challenge of today's medicine), the alarming incidence of zoonoses (infectious diseases transmitted from animals to humans), the almost uncontrolled growth and diversification of a great number of diseases determined by climate changes and population movements for which we propose:

1. adopting a single, unique program in Europe to fight microbial resistance to antibiotics under the coordination of the FEAM;

2. setting up the *One Health* European Institute of Comparative Medicine, within the Federation of European Medical Academies (FEAM), together with *One Health* Dutch Centre;

3. conducting a broad program of scientific projects under the coordination of FEAM;

4. setting up, in Romania, the NATO-One Health Centre, an initiative proposed at the NATO Forum in Kiev from May 10-12, 2018, where *One Health* Romanian Delegation, represented by Prof. Nicolae Manolescu, rightfully highlighted the opportunity of this approach, in the spirit of *One Health* concept, in the context of the globalization of conflicts. Mention should be made of the fact that the medical activities within the US Army take place under the umbrella of *One Health* concept;

5. carrying out actions meant to promote and conclude collaboration agreements in *one health* domain of with the European academies of medicine, thus establishing a European *one health* network under the coordination of FEAM.

VIII. *One Health* Contributions to the European One Health Plan for a Sustainable and Predictable Life

The need to create a portfolio of scientific research at FEAM level that ensures a correct implementation of *One Health* concept as well a multilateral development is absolutely necessary. This first stage would envisage:

1. the overall application of *One Health* concept as a general strategy regarding the effect of synergies that can determine the

particular methodologies specific to Primary Prophylaxis of Life within biodiversity;

2. bioterrorism and biosecurity in connection with zoonoses (transmissible diseases from animals to humans, including through vectors); air, water and soil as propagation media;

3. immunologically active avian proteins in the human infectious pathology produced by antibiotic-resistant bacteria;

4. the identification and quantification, monitoring and alerting with regard to chemicals with oncogenic potential in the Danube water and its main tributaries on the territory of Romania and, by extrapolation, in other European regions;

5. the identification, quantification, taking necessary measures, monitoring and alerting with regard to major vector zoonotic reservoirs (mosquitoes, ticks, rats and pigeons) at major city level;

6. high-level scientific exchanges within *One Health* conferences that are to be held periodically, centralized within the future One Health European Network. Mention should be made of the fact that the National Network was set up in Romania, being the first network of this kind created at the European level.

