

One Health Initiative

Uniting human, animal and environment studies to wrangle zoonotic and infectious diseases, members of the **One Health Initiative** explain how their holistic approach aims to synergise healthcare research and boost public health for the future

Could you give us an overview of the role and objectives of the One Health Initiative and your individual expertise?

In essence, the One Health concept envisions that all healthcare providers – both human and animal – along with other related scientific disciplines, will work together in sharing information, research and discoveries for the betterment of all life on earth.

Our One Health Initiative Autonomous pro bono team promotes One Health in various professional journal publications, newspapers and magazines, as well as through the operation of the One Health Initiative website and speaking engagements. It is comprised of two physicians, a veterinarian and a prominent research scientist: Physician Laura H Kahn, MD, MPH, MPP is an author and currently a research scholar at Princeton University who has taught an undergraduate One Health course; veterinarian Bruce Kaplan, DVM, is contents manager of the website and has worked for the U.S. Centers for Disease Control and Prevention and the U.S. Department of Agriculture's Food Safety and Inspection Service; physician Thomas P Monath, MD, is an eminent medical virologist widely known for vaccine developments and is a partner at Kleiner Perkins Caufield & Byers, Pandemic & Biodefense Fund, at Harvard; and Jack Woodall, PhD is a world-renowned health scientist virologist and a co-founder and associate editor of ProMED-mail and is contents manager of the website's ProMED page.

How would you rate the current level of coordination between human and animal medical projects to date? Has the importance of a dual approach received increased recognition in recent years?

This is difficult to gauge. With the dual approach via the Internet, an increase in the number of One Health seminars and talk in general has certainly enabled us to gain more recognition, but a lot still needs to be done. Frankly, we need to do a better job of communicating what is in it for each discipline in order for these basic essential elements of society to 'get it'.

So far, we would say that the One Health movement has been largely a grassroots effort of private organisations, such as professional societies, foundations and academic institutions. To succeed, the initiative must ultimately be driven by national government and international organisations with agendas of action, backed by policy change and funding. This mandate has not yet been achieved and will require strong leadership.

A momentous example: In November 2011 a One Health resolution was adopted by the USA National League of Cities calling on the

federal government to "adopt legislation and practices that address human health, animal health, and ecological health" with "integrated decision-making in the context of the One Health Initiative."

Given the increased pressures associated with overpopulation, food demand, and climate change, how will the One Health Initiative help to prepare us for the medical and veterinary challenges that lie ahead?

Adequately addressing the need for abundant, safe, high-quality protein food sources and how this relates to climate change is of critical importance to those engaged in One Health principles. The increased demand for animal protein will require improved and innovative methods of animal husbandry and prevention of diseases affecting livestock, while ensuring that there are no untoward consequences of increased density of animals, such as disease transmission between animals and between animals and humans.

The increased utilisation of antibiotics in food animals, with resultant emergence of antibiotic resistance of pathogenic bacteria is a concern that must be managed and ultimately averted by innovative methods. Cooperative, integrated collaborations are essential with changing scientific challenges associated with food production methods and food safety. Veterinary medical, microbiological and plant pathology expertise will be paramount for research activities required in order to understand and implement efficacious development.

Infectious and zoonotic diseases seem not to have featured prominently in the news in recent months. Is this a result of ongoing progress by organisations such as the One Health Initiative, or are there any diseases that are particularly rife but have been overlooked?

The emergence of new zoonotic diseases continues unabated. Pathogens continue to evolve due to a variety of manmade and environmental factors. In 2009 a new life-threatening tick-borne phlebovirus disease called severe fever thrombocytopenia syndrome virus (SFTSV) emerged in China. Unfortunately, many expect a host of other agents (some possibly overlooked today) to evolve in the foreseeable future. In the last several years, there have been dramatic emergences in various parts of the world of a variety of zoonotic diseases, including Nipah virus disease, Q fever, Chikungunya, hantavirus disease, yellow fever, and bluetongue. In some of these emergences, new geographic areas were involved. In other cases, disease emergences were clearly linked to climate change (eg. bluetongue in Europe).

Interview contributors:

Drs Bruce Kaplan, Tom Monath, Laura Kahn, and Jack Woodall



We believe that other valuable One Health organisations, in conjunction with our One Health Initiative team activities, are crucial for meeting such challenges in future from a global health perspective.

Could you comment on the One Health Initiative's involvement in the development and distribution of new vaccines and protocols? Have you made any considerable advances since we last spoke?

The One Health Initiative promotes engagement of scientists working on vaccines and drugs against diseases of animals and humans to work collaboratively. For example, companies in the biopharmaceutical industry typically have separate human and animal divisions. Cross-fertilisation of ideas and discoveries across these divisions appears to be increasing, and moreover there is a general trend to improve the quality of animal products to more closely match that of human vaccines and drugs.

The problem of antibiotic usage in animal feed is being addressed by animal health companies using scientific approaches acquired from human medicine. The control of rabies, a huge problem in Asia in particular, is being addressed by significant improvements in vaccine quality, supply, and innovative methods for rapid immunisation. Recently, a study of the National Academy of Sciences on the Special Immunizations Program in the U.S. (dealing with vaccination of laboratory and field workers against dangerous pathogens) evaluated the situation from the dual perspective of human and veterinary medicine – the first time this has ever been done.

Can you comment on your relationship with the American Medical Association? What advantages does such a close collaboration provide for both parties?

One Health has been supported by the American Medical Association in collaboration with the American Veterinary Medical Association and others since 2007. Our One Health Initiative team and our website have had an excellent relationship with two outstanding American Medical Association Presidents. One Health advocate and former AMA President Ronald Davis, MD originally asked Kahn to help draft the AMA's One Health resolution that was subsequently adopted by AMA in June 2007. Team members Monath, and Kaplan assisted Kahn with some editing of the draft.

The immediate past President, Cecil B Wilson, MD was a strong One Health advocate. He discussed One Health on a panel discussion at the North American Veterinary Conference in January 2011 in Orlando, Florida. The conference is usually attended by over 6,000 private practicing veterinarians from the U.S., Canada and elsewhere.

The 1st International One Health Congress meeting was held in Australia in February 2011. What was the central theme of the event, and what was discussed?

This meeting on One Health was envisaged to focus on the disease risks and challenges brought about by the interactions between animals, humans and the environment. Its goal was to have a global cross-section of participants review current disease knowledge at this interface and provide information needed to more effectively manage the emerging infectious disease risks at national, regional and global levels. The results were to include the identification of future research directions and to make recommendations on policy and organisational changes using the underlying science to inform and drive the process.

The three-day Congress consisted of six sessions, each starting with a keynote speaker highlighting the issues, the challenges and the speaker's vision of the future. A three-person panel then debated the issues prior to breakout sessions to consider a range of science papers on the plenary session topic. The meeting ended with a synthesis of the way forward in the fields of disease emergence, environmental drivers, trade and food security and science linked to policy considerations.

How do you disseminate the work of the One Health Initiative? Is it important to increase awareness of the benefits of collaborative human and veterinary medicine, and the prominent threats to both human and animal health?

Since 1 October 2008 our team and individual team members have established the One Health Initiative website to allow open access for all audiences interested in One Health news, publications and upcoming events worldwide. It is often said to be referred to as the 'clearing house' for most, if not all, One Health information. Our goal is to continue to help provide this open egalitarian atmosphere as long as feasible.

Our team is periodically asked to provide One Health speakers, and members are frequently asked to speak about One Health issues at national and international meetings. We have also contributed to numerous One Health publications such as professional journals, a few newspaper Op-Eds, and book chapters on the subject.

www.onehealthinitiative.com

