

A FULBRIGHT EXPERIENCE: THE IRONY OF AN EVENT

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ABSTRACT

My first public health teacher was my mother, a nurse in underserved communities of southern Florida, US. Her captivating cases of Neglected Tropical Diseases (NTDs) filled our evenings at home. Fifty years later, I prepared my keynote address, “One Health and NTDs” as a 2020 US Fulbright Specialist in Malaysia. Who would have predicted that my keynote, and the World Health Organization’s proclamation of the Covid-19 global pandemic would display on the same day?

Keywords: neglected tropical diseases • one health • public health • collaborative interdisciplinary teams



NEGLECTED TROPICAL DISEASES: IMPORTANCE IN TODAY’S WORLD

As a 2020 US Fulbright Specialist in Malaysia, my remit was to address Neglected Tropical Diseases (NTDs) and mitigate them with a One Health approach. One Health emphasizes connections between animals, humans, and environmental health, and is defined as a collaborative interdisciplinary approach to optimal health. This approach shares similarities with traditional aspects of veterinary parasitology, including host-parasite relationships as well as the role of the environment. Planet Earth continues to amaze by supporting life for animals, eight billion humans, environments, and resources such as water and food. At the same time, 18 NTDs are responsible for illness in a billion people across 147 countries, and a second billion who live in abject poverty are at risk of contracting multiple NTDs across Asia, Africa, and the Americas. NTDs and public health problems that afflict Southeast (SE) Asia include mosquito-borne dengue, malaria, schistosomiasis, and lymphatic filariasis. NTDs are especially disabling amongst the socio-economically disadvantaged and neglected human populations. “An NTD anywhere is a threat everywhere!” Anonymous.

In 2008, the human population numbered 6.6 billion. By 2022, this reached eight billion, and by 2100 is projected to reach 11.2 billion (United Nations, 2022). This article will illustrate how the One Health approach mitigates NTDs. Today, more than ever, planet Earth is globally connected.

While NTDs challenge human and animal populations, it has also presented me with the privilege to learn from and teach many colleagues globally, while developing research programs and establishing life-long collaborations. For over 42 years, NTDs and the One Health approach have directed my research and teaching career in over 47 countries, largely in Africa, the Caribbean, and the US, and continue to open doors to study, teach, build, and maintain life-long collaborations.

Working in communities where NTDs are common requires One Health skills. In 2019-2020, I had the privilege to present two Keynote Addresses focused on One Health and NTDs. The first was “Demystifying One Health: Sifting and Winnowing the Role of Veterinary Parasitology” at the 27th Conference of the World Association for the Advancement of Veterinary Parasitology in Wisconsin, US. During this conference, several SE Asian colleagues attended and invited me to visit Malaysia to collaborate and build One Health programs with their universities and communities. This would be supported by the US Fulbright Specialist Program and entitled “Capacity Building in Research and Teaching Through Concepts of One Health.” The next ten months of preparation required regular online meetings to design project activities. One included the 56th Annual Scientific Conference keynote opening address of the Malaysian Society of Parasitology & Tropical Medicine (MSPTM), as well as training programs, seminars, and public lectures. Communications required adapting to time differences of 13-14 hours between us. I was honored to be awarded as a US Fulbright Specialist in SE Asia, which would allow me to collaborate with colleagues across the region, managing NTDs by applying a One Health approach, and building collaborative research programs. After nearly a year of preparation, I looked forward to meeting colleagues in Malaysia.

The MSPTM conference theme, “Neglected, Tropical and Vector Borne Diseases: The Evolution of One Health from Challenges to Solutions” combined the 56th Annual Scientific Conference of the MSPTM with the 3rd Asian Simuliidae Symposium in Kuala Lumpur, Malaysia. Colleagues from Malaysia, Indonesia, Singapore, Taiwan, Nigeria, and the US attended the conference. The first event was my keynote opening address “How a One Health Approach Mitigates Neglected Tropical Diseases” on March 11, 2020.

ONE HEALTH APPROACH: ITS CRITICAL PLACE IN THE WORLD TODAY

Public health promotes the welfare of entire populations and endeavors to mitigate the spread of NTDs to improve human and animal health. It also shares many similarities with traditional aspects of veterinary parasitology including host-parasite relationships, as well as the role of the environment. The One Health approach is essential to public health and requires collaborating in teams with numerous skills. I learned early in life that this

is essential to improving the health of people, as well as animals including pets, livestock, production animals, free-ranging and captive wildlife, and the environment. The World Health Organization (WHO) goal expands One Health by designing and implementing programs, policies, legislation, and research throughout multiple sectors which communicate and work together to achieve better public health outcomes for the planet.

Because One Health is a team approach, its kaleidoscope of skills and disciplines encompass animal health, human health, environmental health, and parasitic organisms such as helminths, protozoa, bacteria, and viruses. Experts in public health, molecular biology, genetics, and epidemiology are critical as well as those in policy, advocacy, community, and education. Additionally, collaborative interdisciplinary teams require critical skills, partners, building trust, and a substantial investment of time. Habitually, our focus is on NTDs in developing countries, but developed nations are not without their challenges. Some global examples include vector borne diseases, emerging zoonoses, antibiotic resistance, insecticide resistance, veterinary parasitology, medical and forensic entomology, and medical microbiology.

Building and strengthening One Health teams is critical. But bringing teams together is easier said than done. After all, isn't it easier to "walk alone"? This reminds me of a proverb of the N'gambai people located in the 7-country bulge of West Africa (Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, and Nigeria) which includes a vast number of cultural groups and dialects. To collaborate across these wide-ranging areas, the N'gambai travel thousands of miles as they have throughout their history. One of their proverbs underscores the interdisciplinary approach. "If you want to travel fast, you travel alone. If you want to travel far, you travel together." As a result, they continue to successfully build and optimize long-term sustainable business transactions across this vast expanse.

HOW A FIVE-STEP APPROACH BUILDS SUCCESSFUL LONG-TERM ONE HEALTH PROGRAMS

Ten months passed before I traveled to Malaysia in March 2020. During this period, I strengthened collaborations with Malaysian colleagues and designed One Health programs to address a wide span of individuals including university students, communities, and political and government players. The overall goal was to enable all to participate, discuss and apply the One Health approach. Finally, we were ready to meet and move forward with planned activities.

Earlier in my career I developed five essential steps to apply the One Health approach. These are identifying societal needs, such as NTDs (i.e., malaria, dengue, etc.), building collaborations and interdisciplinary teams of stakeholders with critical skills, investing time to build trust and relationships with teams and stakeholders, building sustainable research, education, and outreach programs, and "measure well to manage well."

During this period, we also developed global collaborations interwoven with the NTDs, which included teaching veterinary and medical parasitology, research, and training programs focused on professional, undergraduate, and graduate students. I looked forward to learning how SE Asian countries manage their regions' burgeoning human populations, their priority research areas and projects, and how the NTDs are taught locally, regionally, and globally. SE Asian colleagues in this region work with neglected, tropical, and vector-borne diseases of greatest importance. The One Health model which I have developed includes how to successfully identify and mitigate societal needs and find solutions to these challenges.

Measuring the impact of these efforts requires robust tools such as evidence-based metrics to measure, manage, and increase the value gained by applying interventions to improve outcomes, reduce risks and optimize economic benefits. This is a pathway essential for applying the One Health approach to parasitological and medical challenges, determining which interventions and protocols will result in the greatest impact, reducing risk and disease at the human-animal environment interface, and ultimately provide greatest benefits to all stakeholders across the planet.

WHAT WAS THE IRONY OF THE EVENT?

Finally, March 11, 2020 arrived and the Conference was ready to begin. I was presenting the Keynote Opening Address entitled "How a One Health Approach Mitigates Neglected Tropical Diseases." I planned to emphasize the global presence of the NTDs especially when water safety, sanitation, and access to health care are insufficient.

Serendipitously, the WHO Director-General, Dr. Tedros Adhanom Ghebreyesus, proclaimed the Covid-19 pandemic on the same day as my opening address. Now 36 months later, he has confirmed 758,390,564 cases globally and 6,859,093 deaths. However, the "irony of the event" on March 11, 2020, was that both Director-General Ghebreyesus and I presented parallel messages. He announced the pandemic, and I called for an interdisciplinary One Health approach to address the global NTDs. In retrospect, both of our messages highlighted the necessity of collaboration equally amongst all humans and countries, and the importance of an interdisciplinary approach globally to provide optimal health.

An unexpected outcome of the WHO pandemic announcement was the abrupt shortening of my visit to Malaysia. My colleagues and I swiftly had to identify alternative steps to respond to this unexpected turn-of-events and still complete our goals as we were preparing to return immediately following the conference. What an unanticipated message! The early departure was not only unexpected but truly a huge disappointment for our host and colleagues, as

well as my husband and me. As with any urgent situation, there is little time or opportunity to contemplate when taking immediate action. In our situation, it was to return straightaway to the US. I met with Malaysian colleagues to strategize a plan to continue our collaboration.

As our departure flight and return trip unfolded, I was able to “slow down” and begin to prioritize the collaborations we had initiated. This required “thinking out of the box.” How have we accomplished this in the past three years since Covid-19 changed our lives? Initially, I was reminded that we are professors, colleagues, and students from countries across the planet. We are all affected by global Covid-19, which has unexpectedly brought us closer. Strengthening One Health programs continues (Covid-19 or not) to be my major goal. Some unexpected initiatives and opportunities have been borne out of the pandemic. Our associations continue to strengthen. For example, when our SE Asian colleagues reached out planning the 2021 57th Malaysian Conference and seeking a One Health Keynote speaker for their conference, I introduced them to a One Health human medicine colleague who accepted the invitation. Not yet able to travel globally, we all “attended” this conference in a 13-14 hour time difference. One unexpected gain due to Covid-19 is that we have truly learned how to work productively online. Collaboration at all levels continue to grow beyond our original expectations. None of us globally has been free of the pandemic. As a result, we are closer together than ever, more attuned almost three years later.

REGROUP AND RESOLVE

WHO’s proclamation of the Covid-19 pandemic shortened the events planned in Malaysia with colleagues, students, and communities from across SE Asia. Time was curtailed as we regrouped to return to the US. Still, “Sometimes things happen for a reason”. However, some projects and goals were completed before departing Malaysia. Unfortunately, several anticipated activities were cancelled.

First, One Health and Biohealth training programs were developed specifically for SE Asian undergraduate, graduate, and postdoctoral students focused on skills addressing health-related problems. Second, during the conference, significant numbers of SE Asian next-generation colleagues reached out to me with queries about career guidance. Through social networking, these career guidance queries continue. Third, the Malaysian newspaper *New Straits Times* headline was “*Taenia solium* threatens even non-pork eaters” which highlighted my Keynote Opening to 80 tropical medicine specialists. This NTD causes 30% of global epilepsy in adults and children. This article underscored the threat of this parasite to global public health in SE Asia and has attracted significant interest from the public. Fourth, additional projects included revising current course curricula with undergraduate and postgraduate training in line with the One Health concept. Three years later we continue to resolve the impact of the NTDs.

NTDs ARE CRITICAL TO AFRICA AND THE WORLD: HOW HAS COVID-19 PANDEMIC BROUGHT US CLOSER?

“For better or for worse” we are all connected on this planet. Who would have anticipated that my One Health Keynote Address to colleagues on March 11, 2020, would synchronize with WHO pronouncing Covid-19 a global virus pandemic? “In the midst of change we often discover wings we never knew we had.” These unexpected events opened doors for us all, laying a path I did not anticipate as a US Fulbright Specialist in Malaysia. This has led to and continues to build global collaborations and interdisciplinary One Health teams.

For better or for worse we are all connected on this planet. Who would have anticipated that my One Health Keynote Address to colleagues on March 11, 2020, would synchronize with WHO pronouncing Covid-19 a global virus pandemic?

Three years of events with the generous support of the US Fulbright Specialist Program has led to this *Fulbright Chronicles* article. The Covid-19 pandemic occurring at the same time as my US Fulbright Specialist in Malaysia was by no measure uncanny. Our planet Earth connects all of us globally.

NOTES

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Tropical Medicine specialists from Malaysia, Indonesia, Singapore, Taiwan, Nigeria, and the US participated in the 56th Annual Scientific Conference MSPTM, Malaysia, entitled “Neglected, Tropical and Vector Borne Diseases: The Evolution of One Health from Challenges to Solutions” (Photo credit: MSPTM)

BIOGRAPHY

Rosina C. Krecek, PhD MBA, has held multiple high-level positions combining One Health and veterinary parasitology, including Associate Dean for Research at Ross University School of Veterinary Medicine, West Indies; Professor of Global One Health and Interim Dean of One Health, Texas A&M University, US; and Professor of Parasitology, South Africa. She wishes to thank the US Fulbright Specialist program for their support. Rosina can be reached at rkrecek@icloud.com and <https://www.krecekandkrecek.com>
