



One Health in the Americas Conference

Conferencia sobre Una Salud en Las Americas

Abstract

The First One Health in the Americas Conference was held on November 15-16, 2016 in Todos Santos, Baja California Sur, Mexico, just after the first global One Health Day. The Conference was hosted by Colora-

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do State University's Todos Santos Center. The academic program of the Conference included lectures from nine invited speakers, one panel with seven experts, one facilitated discussion, and nine poster presentations. The Conference was attended by 40 invited participants from seven countries from throughout the Americas. The objectives of the Conference were to bring together key personnel from the Americas, with diverse backgrounds and focus, to identify priority topics for research towards One Health in the Americas, and to explore the creation of a One Health in the Americas Network. This manuscript summarizes the contributions from the

speakers at the Conference, as well as the outcomes of the panel and the facilitated discussion about the Network. Taken together, the activities at the Conference highlight shared challenges, interests, and opportunities for scientific projects, training and collaborations, as well as the need to increase community participation towards achieving the goals of One Health in the Americas.

Keywords: Americas, One Health, Transdisciplinary

Resumen

La primera Conferencia sobre Una Salud en Las Américas se llevó a cabo del 15 al 16 de noviembre del 2016 en Todos Santos, Baja California Sur, México, justo después del primer día mundial de Una Salud. El centro educativo de la Universidad Estatal de Colorado en Todos Santos fue el anfitrión de esta Conferencia. El programa académico de la Conferencia incluyó ponencias de nueve invitados, un panel con siete expertos, una discusión facilitada, y nueve presentaciones en modalidad cartel. Cuarenta participantes de siete países de las Américas asistieron a la Conferencia. Los objetivos de la Conferencia fueron reunir a personal clave de las Américas, con conocimientos y enfoques diversos, para identificar los temas prioritarios sobre Una Salud en Las Américas, y explorar la creación de una Red de Una Salud en las Américas. Este manuscrito resume las contribuciones de los ponentes, así como los resultados del panel y la discusión facilitada. En conjunto, las actividades durante la Conferencia enfatizan retos, intereses y oportunidades para proyectos científicos, entrenamiento y colaboraciones compartidos, así como la necesidad de aumentar la participación de la comunidad para lograr las metas de Una Salud en Las Américas.

Palabras clave: Americas, Transdisciplinario, Una Salud

The concept of One Health is based on recognizing that human health is intrinsically related to the health of animals, plants and ecosystems (One Health Global Network; Centers for Disease Control and Prevention). The term "One Health" was adopted from the "One Health, One World™"



(Centers for Disease Control and Prevention) concept presented during the Wildlife Conservation Society's symposium "Building Interdisciplinary Bridges to Health in a 'Globalized World'" in 2004 (Wildlife Conservation Society), and which called for interdisciplinary, international approaches to disease prevention and health promotion.

The first "One Health in the Americas" Conference was held on November 15-16, 2016 in Todos Santos, Baja California Sur, Mexico, and was hosted by Colorado State University's Todos Santos Center (<http://todosantos.colostate.edu/>). The academic program of the Conference included lectures from nine invited speakers, one panel with seven experts, one facilitated discussion, and nine poster presentations. The Conference brought together 40 participants, from 17 institutions from seven countries throughout the Americas. The objectives of the Conference were to bring together key people from the Americas, with diverse backgrounds and focus, and to collectively identify regional needs, common goals and priority topics for One Health in the Americas.

Dr. John Spencer from the Department of Microbiology, Immunology & Pathology, College of Veterinary Medicine and Biomedical Sciences at Colorado State University, Fort Collins, CO, USA, along with his colleague Dr. Claudio G. Salgado from Laboratório de Dermato-Imunologia at Universidade Federal de Pará, Pará, Brazil, delivered the opening talk entitled "Evidence of zoonotic leprosy in Pará, Brazilian Amazon, and increased anti-PGL-1 titer in individuals who consume armadillos in their diet", thus inaugurating the first "One Health in the Americas" Conference.

Drs. Spencer and Salgado presented their long-term, on-going international collaboration studying leprosy in the Brazilian Amazon. Leprosy is a zoonotic disease in humans caused by *Mycobacterium leprae* transmitted from armadillos (*Dasypus novemcinctus*), the only other known natural reservoir of *M. leprae*. Drs. Spencer and Salgado reported a 63% prevalence of leprosy among the tested human population, and 58.3% infection prevalence among armadillos, in the Brazilian Amazon. Although they did not find a statistically significant difference in serum titers between human residents with hunting, manipulation, or moderate con-

sumption of armadillo meat and those with low contact with armadillos, they did find that individuals who consumed armadillos more than once per month had a statistically significantly higher titer than those who ate armadillos less frequently.

In addition, in the talk "Are we really eliminating leprosy or is it absence of diagnosis?", Dr. Salgado reported on finding leprosy among school children living in the Brazilian Amazon region of Pará State. Dr. Salgado highlighted insufficient diagnostic approaches, scarce official reports by the municipality, and not enough treatment applications as important barriers to children's health. Dr. Salgado suggested that disability rates and contact tracing capabilities are some of the most important indicators within the leprosy areas worldwide.

The series of talks for the first "One Health in the Americas Conference" were divided into three sessions, according to the program areas of One Health as co-designed by the One Health Institute of Colorado State University (<http://onehealth.colostate.edu>). These

programs are: Urbanization and Health, Environmental Change and Health, and Foodscapes and Health. In the Urbanization and Health Session, Dr. Katherine Mella from MIT Community Innovators Lab in Boston, Massachusetts, USA, delivered the talk “Wellness based development in the Bronx, New York”. Dr. Mella addressed the connections between poor health outcomes and the lack of opportunities for quality education, high-road jobs, and affordable housing. She mentioned that access to and provision of healthcare are not enough to narrow the gap on existing health inequities, and pointed out that the factors that most impact health outcomes are social, environmental, and economic (i.e., the ‘social determinants of health’).

Dr. Mella explained that MIT Community Innovators Lab and the Bronx Cooperative Development Initiative are working together towards building a sustainable, equitable, and democratic economy in the Bronx with the ultimate goals of improving health outcomes and providing the foundation for shared wealth, owners-

hip, and wellness

Next, Dr. Carlota Monroy from the School of Biology at Universidad de San Carlos in Guatemala City, Guatemala, spoke of “An ecosystem approach for the Prevention of Chagas Disease in Rural Guatemala”. Chagas disease is caused by a tropical parasite (*Trypanosoma cruzi*) that is transmitted by blood-sucking insects. Chagas disease is prevalent in various rural areas in the Americas. Dr. Monroy reported that because of the insects’ migration patterns, as well as the deterioration of the environment, conventional methods of vector control (insecticide-based) are ineffective, expensive, and/or require repeated applications. Working in rural Guatemala with local communities, Dr. Monroy’s transdisciplinary research and education team assessed and prioritized risk factors for the transmission of Chagas disease. Dr. Monroy reported that among the designed interventions that proved effective against vector infestation are house improvement (via the intentional use of local materials for building, cement flooring) and domestic animal management (chicken relocation into coops, vaccination); she stressed that community participation and education are key factors for the continued success of the project.

In her talk “The salmon people, a family of beavers, and a grey whale in False Creek: biophilic stories in urban regeneration”, Dr. Meg Holden from the Department of Urban Studies and Geography at Simon Fraser University in Vancouver, British Columbia, Canada, addressed the rise of ecologically friendly neighborhoods as a lifestyle choice for people in urban areas to promote healthier lives. Dr. Holden summarized case studies from Seattle, Vancouver, and Victoria, and emphasized the importance of construction policies and planning and building codes in the design and implementation of eco-urban sustainable developments.

Session 2, “Environmental Change and Health”, of the One Health in the Americas Conference was opened by Dr. Todd O’Hara from the Wildlife Toxicology Laboratory of the Department of Veterinary Medicine in the University of Alaska Fairbanks at Fairbanks, Alaska, USA. Dr. O’Hara spoke about “Rural Alaska monitoring for environmental agents of disease: linking local residents to disease specialists” (O’Hara et al., 2018). The



on-going Rural Alaska Monitoring Program utilizes invertebrate and vertebrate species as sentinels to monitor disease agents with active participation of the Alaska Native Tribal Health Consortium. Dr. O'Hara commented on a novel method implemented in Alaska to assess for antibody titers to *Toxoplasma gondii*, *Coxiella burnetii*, *Brucella* spp., and *Francisella tularensis*, as well as to monitor concentrations of heavy metals and contaminants in a range of wildlife species, vectors (e.g., mosquitoes) and humans. Results from this study are further detailed in the accompanying paper (O'Hara et al., 2018).

Dr. Hugo A. Ruiz-Piña from the Centro de Investigaciones Regionales of the Universidad Autónoma de Yucatán, Mérida, Yucatán, México, spoke of "Research experiences on wildlife hosts and transmission risk of zoonotic diseases in Yucatán, México". Dr. Ruiz-Piña reported on studies of toxoplasmosis in the Yucatán peninsula. Toxoplasmosis is a zoonotic parasitic disease with a worldwide distribution that is caused by the protozoan *Toxoplasma gondii*, which can infect birds and mammals, including humans. Dr. Ruiz-Piña reported that the opossum, *Didelphis virginiana*, can act as a source of infection to humans by consumption in tropical forest and rural areas.

In the final talk "Not such a bird-brained idea? Biodiversity, ecosystem integrity and One Health" of this session, Dr. Kathryn P. Huyvaert from the Department of Fish, Wildlife, and Conservation Biology at Colorado State University at Fort Collins, Colorado, USA, remarked that One Health is characterized by the interrelationships among people, places, and animals and that these interactions are often overlooked by metrics of health. Using a case study of a tropical seabird as a bioindicator of marine ecosystem health in the Americas, Dr. Huyvaert emphasized the value of ecological integrity, acknowledging that impacts of perturbations on one component of a system flow to the others. She concluded that acknowledging the interconnectedness of people, animals, and the environment is paramount for addressing the effects of environmental change on the health of humans, animals, plants, and the ecosystems we share.

Session 3 of the One Health in the Americas Conference focused on

Foodscales and Health (called Food Systems and Health at that time). Dr. Rafael Ortiz from the Environmental Defense Fund of Mexico, A.C. from La Paz, Baja California Sur, México, delivered the talk "Rights-based management and healthy fisheries- the case of Gulf Corvina". Meeting the global demand for nutrients is a challenge to food systems that is complicated by the degradation of the world's oceans. Using the case of gulf corvina (*Cynoscion othonopterus*), Dr. Ortiz spoke of the benefits from scientific research-based catch limits and rights-based approaches to fisheries management, and recognizing the value of local cultures in improving fisheries performance. Other benefits of this participatory approach to the corvina fisheries include lower accident rate among fishermen and increased profits from the fisheries, which lead to better human health, lower corvina catch, and healthier fish stocks. Combined, these results suggest that rights-based approaches to fisheries management will eventually lead to healthier ecosystems.

In the final talk of the theme

sessions of the first One Health in the Americas Conference, Mr. Philip Sambol from Oasis Community Partners and Good Food Markets in Washington, D.C., USA, presented the case study of his own company. Good Food Markets is a mission-driven grocer that aims to provide fresh food to people living in communities that have very limited access to fresh produce (i.e., “food deserts”). Mr. Sambol spearheaded the launching of a stakeholder-based local food movement, Oasis Community Partners, a non-profit that provides education, data analysis, program development, and consultation within marginalized communities, such that assets are locally produced to match community needs. By designing and continuously updating food sourcing, funding, and pricing models, Good Food Markets and Oasis Community Partners allow fresh food to be available, affordable, and sustainable in a Washington, D.C. food desert. This model provides an option to decrease health disparities and to increase social coherence.

The panel of the One Health in the Americas Conference included researchers, clinicians, program managers, and administrators from different institutions and countries. The international and transdisciplinary approach to discussion of the topics presented during the program sessions and the poster presentations provided a unique framework to the benefits of involving all sectors (i.e., academic, NGOs, government, community, private sector, funders), in promoting economically feasible, data-based programs that allow for actions, awareness, and surveillance of One Health issues in the Americas. The main concern identified during this panel was the need for workers from the different sectors to act in concert to maintain the health of humans, animals, plants and ecosystems. To achieve this common One Health goal, prevention programs need to be designed that recognize and respect the regional cultures, so that local communities are empowered to promote sustainable One Health actions in their homes, families, and communities.

The One Health in the Americas Conference ended with a facilitated discussion in which all participants joined in a conversation lead by Dr. Brian Dunbar, Executive Director of the Institute for the Built Environ-

ment, Colorado State University, and Dr. Aines Castro-Prieto, Colorado State University’s Todos Santos Center. During the discussion, participants shared their concerns, perspectives and experiences in One Health, which were then used to identify and prioritize main needs and common goals relevant to One Health in the Americas. This facilitated discussion provides the foundations for the creation of a One Health in the Americas Network.

We feel that this first One Health in the Americas Conference succeeded in exploring critical issues of regional interest with global impacts. The main outcomes of this Conference were: (1) planting the seed for the creation of a One Health in the Americas Network that includes researchers, educators, stakeholders, funders, and decision-makers; (2) the reaffirmation that, in order to maintain and improve human health, actions to preserve the health of animals, plants, and ecosystems need to be considered and coherently implemented; and (3) the recognition that direct, engaged, and sustained participation of the



affected communities is imperative for the success of any action or activity that aims towards promotion of wellness and health of humans, animals, plants, and ecosystems.

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References

- One Health Global Network. <http://www.onehealthglobal.net/what-is-one-health/>. Last accessed: 26 October 2016.
- Centers for Disease Control and Prevention. The Manhattan Principles. http://www.cdc.gov/onehealth/pdfs/manhattan/twelve_manhattan_principles.pdf. Last accessed: 2 November 2016.
- Wildlife Conservation Society. One World, One Health: Building Interdisciplinary Bridges to Health in a Globalized World Conference. 29th September 2004, The Rockefeller University, New York, NY. http://www.oneworldonehealth.org/sept2004/owoh_sept04.html
- O'Hara T., K. Hueffer, M. Murphy, J. M. Castellini, Y. Li, L. Rea and J. Berne. 2017. Developing a Sentinel-based Baja California Sur Rural Mexico Monitoring Program: Lessons learned from Alaska. *Recursos Naturales y Sociedad*, Vol. 3 (2): 12-31. <https://doi.org/10.18846/renaysoc.2017.03.03.01.0002>

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