

Innovative and multidisciplinary experience establishing the One Health Research Institute in Honduras

Una experiencia innovadora y multidisciplinaria estableciendo el Instituto de Investigaciones One Health en Honduras

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To the editors

According to the World Health Organization (WHO), One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, domestic and wild animals, plants, and ecosystems (Organización de las Naciones Unidas para la Alimentación y la Agricultura [FAO] et al., 2023).

Recognizing these close and interdependent links, multidisciplinary and multisectoral collaborations are essential to understand the driving factors of emerging global health risks and identify novel approaches to mitigate exposure to hazards and pathogens.

This holistic perspective, which expands beyond “One Medicine” and “Eco-health” approaches, can help guide the path to achieving the United Nations (UN) Sustainable Development Goals (SDGs) and advancing global health security (Sinclair, 2019). Building local and national research capacity is essential to ensure proper prevention and response efforts and protect population health.

In 2020, Universidad Tecnológica Centroamericana (UNITEC)’s leaders established the COVID-19 Observatory

and the Data Integration Hub for Earth Observations (‘Hub for Earth Observations’), with the primary objective to help monitor the pandemic and some concurrent natural disasters and inform the public with relevant health messages. During the COVID-19 pandemic, UNITEC researchers became actively involved in the Group on Earth Observations (GEO) Health Community of Practice (<https://www.geohealthcop.org/>) and GEO of the Americas Region activities.

They adapted the organizational structure (including the One Health overarching theme) as a model for subsequent multidisciplinary research efforts that leveraged scientific expertise across the nation and globe. The UNITEC team emphasized opportunities to explore high-level health and social impacts through collaboration, ensure funding management, and offer training opportunities for early-career researchers. As a result, the UNITEC’s Academic Council approved and launched the One Health Research Institute in April 2024, as a multidisciplinary research and scientific outreach center on One Health issues that support sustainable communities and the planet. This letter highlights the institute’s primary research areas, academic

experiences, and collaborations between 2024 and 2025, one year after its establishment.

Specifically, the research team includes engineers from different disciplines, legal experts, physicians with expertise in genetics, epidemiology, and epilepsy, aligning projects with the UN SDGs 11 13, 14, 15 and 17. Figure 1 highlights 11 current research focus areas, including epidemiology, environment, natural disasters, molecular biology, Earth observations, and nuclear disasters.

Of the 11 focus areas, the establishment of a new Earth Observation Center (using ArcGIS) allows the consolidation of project information, including maps, graphics, images, text, and publications. In recent months, the center has highlighted the statistics and geographic distribution of dengue fever and screwworms, monitored meteorological phenomena (e.j. Hurricane Beryl and Storm Sara in July and

November 2024, respectively), and communicated air quality risks to the public in May 2024.

Key collaborations have been established with federal agencies (Secretaría de Recursos Naturales), non-governmental organizations (Water for People; Fundación Lucas para la Salud; Mi Ambiente de Honduras; Michael J. Fox Foundation), academic institutions (Cambridge University; University of California in Los Angeles; Instituto de Neurología y Neurocirugía de México), hospitals with clinical research departments (Hospital Escuela Universitario; Instituto Hondureño de Seguridad Social, IHSS; Hospital General San Felipe; Cleveland Clinic), and regional consortia (Latin American Research consortium on the GENetics of Parkinson's Disease, LARGE-PD). To date, research teams have published (or are in preparation) a total of 15 manuscripts.

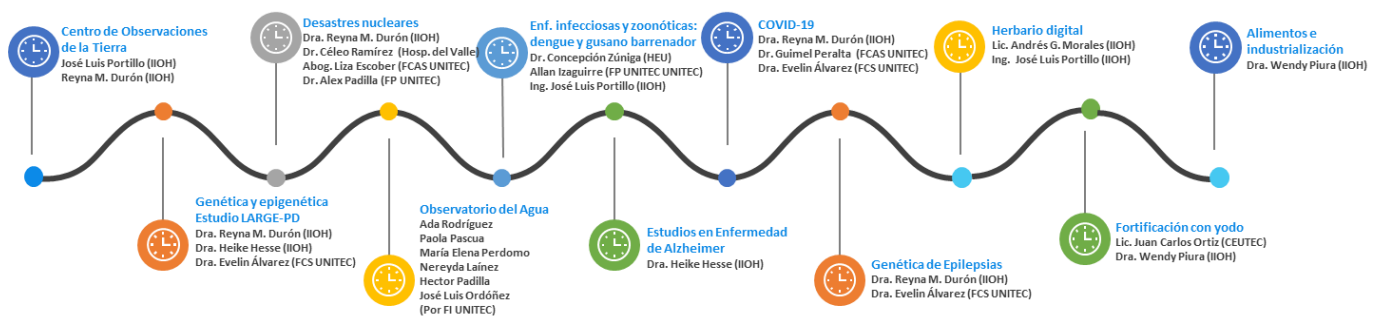


Figure 1. Ongoing projects by the One Health Research Institute researchers and team coordinators.

The UNITEC One Health Research Institute continues to expand in professional scope and by the number of partnerships, as a result of institutional support, researchers' dedication, growing interest in One Health topics, and national and international collaborations. The One Health concept must be integrated into the medical education programs, so students and professionals can lead proactive efforts for a healthier planet for all species.

By leveraging expertise on diverse scientific topics, the One Health Research Institute can identify local and national needs, develop relevant interventions to examine and mitigate health risks, and ultimately represent a model research institution in the Americas region.

Author's contribution

All authors participated in the conception and preparation of the manuscript and approved the final version.

Conflicts of interest

None.

Ethical approval

Not required.

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AI use

Not used.

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