



Evaluation of the certificate in emerging infectious disease research and the certificate in one health training programs, University of Florida

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Abstract In developing countries, public health professionals and scientists need targeted training and practical skills to respond to global emerging infectious disease threats. The Certificate in Emerging Infectious Disease Research was developed in 2008 to aid such professionals to respond to complex emerging disease problems. The short-course was modified slightly in 2013 and renamed the Certificate in One Health. To evaluate the immediate impact of the short-course, an online survey of 176 past participants from both the courses was conducted. The survey tool assessed the program's process, impact, and outcome measures respectively via assessing the courses' perceived strengths and weaknesses, perceived skills gained, and the participants' current position, publication status, funding status, and educational attainment; 85 (48.3%) participants completed the survey. Reported program strengths included the curriculum, expertise of lecturers, and diversity of the training cohort. The principal reported weakness was the compressed academic schedule. The most frequently reported benefits included: epidemiological and

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biostatistical skills, followed by One-Health knowledge, and research skills. Twenty-eight percent of the survey respondents reported publishing one or more manuscripts since completing the course and 21% reported receiving research funding. The course appears to have had a positive, immediate impact on the students' self-perceived knowledge and capabilities.

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1. Introduction

As globalization spurs the international transport of people and goods, and countries expand their human resource base, supply chains and business models, more opportunities arise for the rapid emergence and transfer of infectious diseases across once-separated geographic regions. Important health problems that have already moved quickly across continents include multi-drug resistant bacteria [1,2] and novel zoonotic viruses [1,3]. To address these and other emerging public health concerns, there is a growing need to provide interdisciplinary training across international borders [4]. The Department of Environmental and Global Health at the University of Florida (UF) is helping to address these ongoing public health threats through the Certificate in One Health (COH) program. In the long-term, focused didactic and practical training programs, such as the COH may lead to improved national and regional planning and preparedness for public health emergencies, as well as more efficient and effective responses to emerging health threats. To evaluate the near-term impact of the "short-course", a mixed-methods educational and training model for mid-career professionals from developing countries, members from the UF One Health Center of Excellence (OHCE) conducted an online, mixed quantitative and qualitative survey of the past certificate program participants, including those who did not complete all of the course modules. The survey team sought to better understand the perceptions of the course, including the training environment and pedagogical approach, in an effort to evaluate the process or delivery of the course, as well as gauge course impacts via skills gained and outcomes via a myriad of factors. As no pre-tests had been administered to the previous classes, a quantitative impact evaluation in terms of assessing pre- and post-training knowledge could not be performed.

1.1. Program origin

The COH initially started in 2008 as the Certificate in Emerging Infectious Disease Research (CEIDR) at

the University of Iowa's College of Public Health. In 2010 it was moved to the University of Florida. Over the years, the certificate program has received combined support from the Department of Defense's (DoD) Global Emerging Infections Surveillance and Response System (GEIS), the Department of State's (DoS) Biological Engagement Program (BEP), the US Centers for Disease Control and Prevention (CDC), and from self-funded individual trainees.

The program sought to engage and train mid-level international public health scientists, especially public health and laboratory professionals, to be better prepared to respond to future emerging disease threats. The program was designed to involve a relatively brief commitment for face-to-face didactic time through an intensive review of current laboratory and epidemiologic methods. The focused training for capable scholars did not demand long-term absence from their home countries and after the trainees returned home, they continued their training through additional online courses that were required for the students to receive the certificate.

To achieve a multidisciplinary approach to the understanding of emerging infectious diseases, the program evolved to align with educational and operational goals of the One Health Initiative [5]. In 2013, the certificate was officially renamed the Certificate in One Health and a major change in program format was accomplished by removing the course, Infectious Disease Epidemiology and replacing it with An Introduction to One Health Problem Solving.

1.2. Pedagogic methods and objectives

The COH is an annual (summer), 18-day (6 credit hour) intensive period on campus at UF with mixed teaching methods including didactics, small group problem solving, laboratory instruction, practical exercises, field work and discussions regarding One Health-related videos. Following the residential portion of the course, the students must complete a three-credit online course in environmental health during the concurrent summer semester.

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