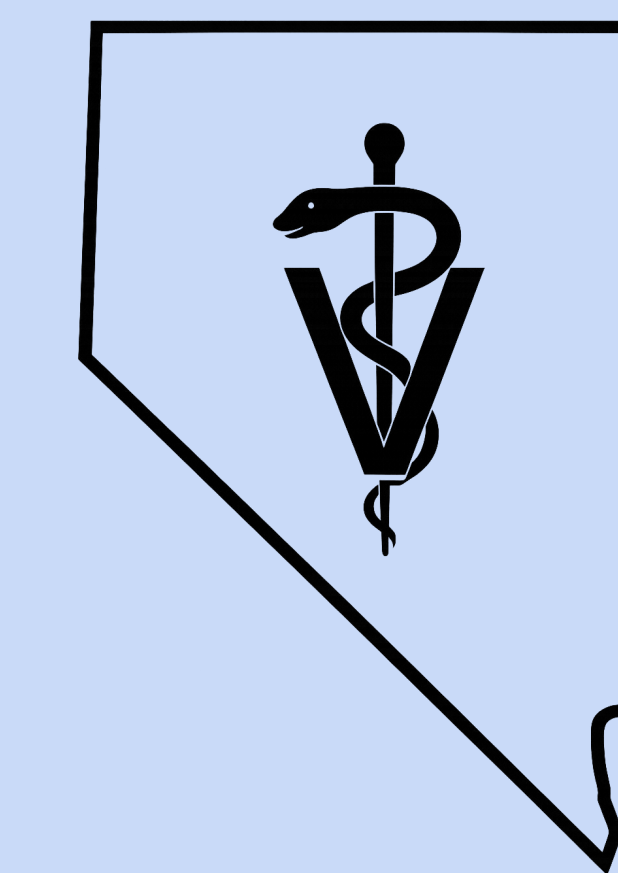




Comparison of “One Health” Curriculum Integration into Nevada Health Professions Programs vs. U.S. Veterinary Colleges



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What is One Health?

One Health offers an interdisciplinary approach to medicine, one that recognizes the connection between **humans, animals, and the environment**. This framework is especially important when addressing issues surrounding zoonotic diseases, drug resistance, and food safety. Global support for One Health has grown in recent years, with organizations such as the **WHO, FAO, WOA, and UNEP** endorsing OneHealth and its collaborative approach to public health and holistic medicine.

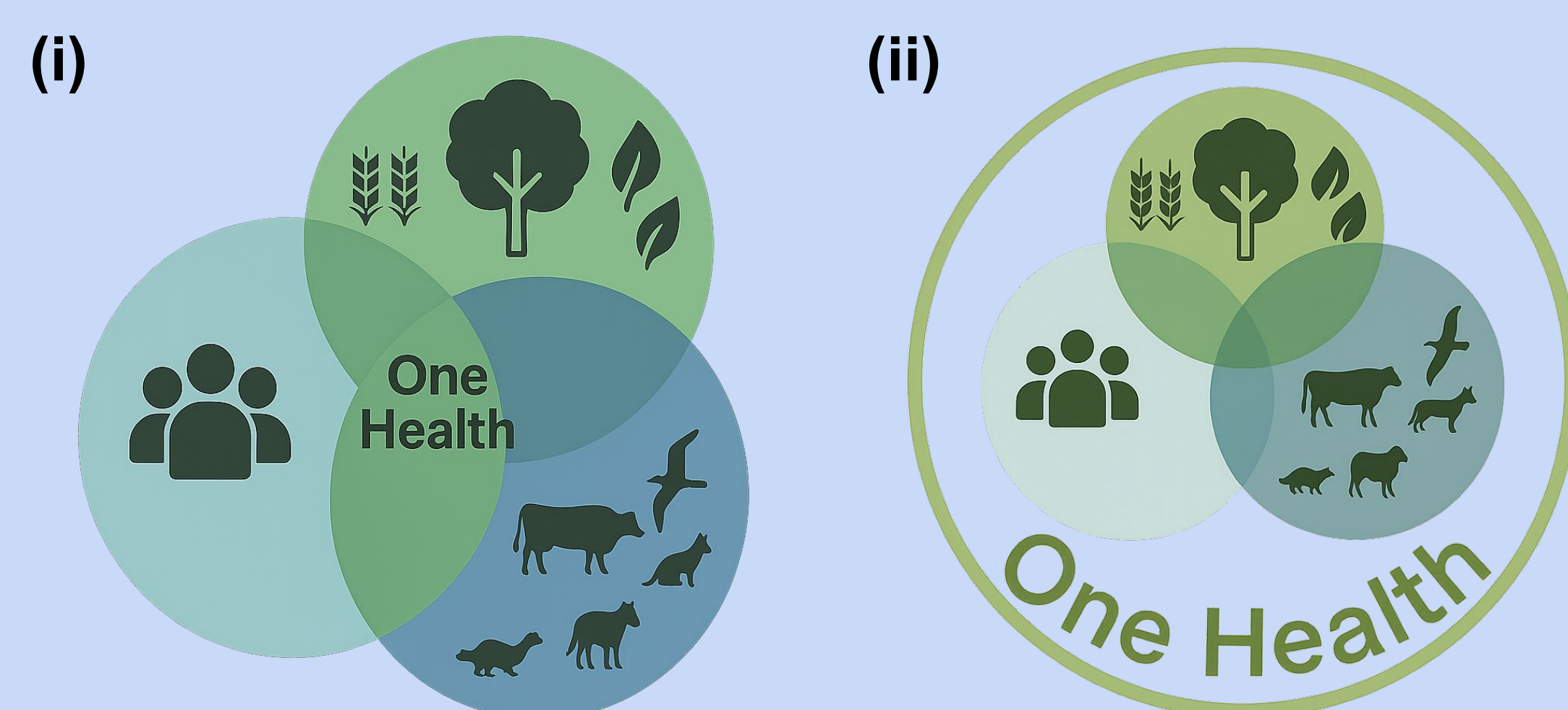


Figure 1: The two primary perspectives within the OneHealth framework include: (i) a focus on specific interfaces between humans, animals, plants, and the environment; and (ii) a broader systems-based approach that considers the health of all these components collectively.

Abstract

This study assessed the integration of One Health principles within the course curricula for human health professions in Nevada, as compared with select veterinary colleges across the United States. The **hypothesis** is that Nevada’s educational programs **do not provide One Health instruction** at the level provided for veterinarians, thereby resulting in **missed opportunities** for establishing the transdisciplinary framework **benefiting public health**. A combination of curriculum review and qualitative interviews was used to compare these fields. Based on the findings, recommendations will be formulated to expand the use of a One Health approach and improve public health outcomes for Nevada’s citizens and animals.

Introduction

The goal of this project was to evaluate the extent to which One Health principles have been **integrated into the healthcare curricula of Nevada’s medical and nursing colleges** (e.g., UNR, UNLV, Touro) in comparison with the **current education of veterinarians** on this topic nationally across select colleges of veterinary medicine. Potential **shortcomings in teaching of One Health** approaches within Nevada’s professional healthcare programs would limit their graduates’ ability to effectively understand and implement these principles, thereby **reducing the effectiveness** of addressing emerging public health challenges within our state. According to the World Health Organization, **60% of emerging infectious diseases** reported globally are **zoonoses**, and **75% of new human pathogens** seen in recent decades **originated in animals** (Jones KE, 2008). If the healthcare professionals are not sufficiently trained to address the interdisciplinary factors contributing to zoonotic diseases, Nevada’s public health disease prevention programs could be suboptimal, especially considering that **76.9% of physicians** who complete their medical education in this state **remain here for employment** (Packham et al., 2022).

Materials and Methods

This project used a **qualitative approach** to assess One Health integration into professional health education programs. We reached out to accredited medical and nursing health schools in Nevada, including the **medical and nursing schools at the University of Nevada, Reno (UNR)**, the **medical school at the University of Nevada, Las Vegas (UNLV)**, and **Touro University Nevada**. We received very few responses from these programs. The UNR School of Nursing stated that there was no formal One Health content, and Touro’s medical curriculum was independently reviewed, also showing no identifiable One Health content. Two faculty who teach infectious diseases at UNLV School of Medicine also stated that students had **no specific exposure** to One Health content. To compare these findings with current veterinary education, we identified and contacted select U.S. colleges of veterinary medicine that either offered **courses explicitly titled “One Health”** or were home to a formal One Health institute. We emailed the faculty of these courses and **eleven veterinary programs** responded to interview requests. **Faculty representing One Health leaders** for their campuses were able to provide insight into how One Health topics were incorporated into their curricula, including various required coursework, elective and research opportunities, and other professional training opportunities. Interview notes were taken and programs were compared to identify commonalities and gaps in One Health education across the U.S.

Scope of One Health Topics

Zoonotic Diseases	Human-Animal Bond
Emerging Infectious Diseases	Disaster Preparedness & Response
Food Safety & Security	Vector-borne Diseases
Antimicrobial Resistance	Transdisciplinary Communication
Global Health	Holistic Approaches to Policy
Environmental Health	... and <i>more</i> .



Figure 2: U.S. Map showing the geographic distribution of U.S. colleges of veterinary medicine interviewed for this study. From left to right: University of California, Davis; University of Arizona; Colorado State University; Texas Tech University; University of Minnesota; Michigan State University; Lincoln Memorial University; North Carolina State University; Cornell University; and Tufts University. Ross University School of Veterinary Medicine (St. Kitts) was also included in the study but is not shown on this map, per their campus request. Each institution is an accredited school of veterinary medicine and was selected based on its curricular integration of One Health principles, either through formal coursework or affiliation with a One Health institute.

Discussion

Interviews with faculty from 11 veterinary colleges offered many different approaches to OneHealth integration. This included **formal coursework, elective course opportunities, and interprofessional collaborations** during their clinical rotations. Institutions such as **UC Davis, Colorado State Univ., Michigan State University and Lincoln Memorial University** displayed **strong interdisciplinary OneHealth integration**. In contrast, Nevada’s **human medical programs lack** a formal One Health curriculum for any major. The UNR School of Nursing has no One Health instruction, and independent review of Touro University’s curriculum revealed no integration. A student from UNLV School of Medicine indicated no familiarity with the concept of One Health. This discrepancy **highlights the gap** in interdisciplinary training within Nevada. Broader implementation of OneHealth principles, which has been demonstrated at a number of other institutions could enhance public health by training future healthcare professionals to **practice medicine through a One Health lens**. All of the institutions listed above, as well as several others, emphasized the importance of early exposure to One Health concepts for developing foundational principles. This usually occurred during the first semesters of doctoral training, promoting collaboration with public health faculty. These practices could easily be integrated into Nevada healthcare curriculum and serve as models for Nevada to follow.

Future Plans

We plan to collate our findings into a written summary for submission to the *Journal of Veterinary Medical Education (JVME)*. All faculty interviewed commented about the importance of this comprehensive assessment and a colleague at Tufts is interested in co-authoring a paper. Additional interviews and curriculum reviews may be conducted in the future. Our goal is to contribute to development One Health in medical training across all health professions, particularly here in Nevada. Many veterinary colleges promote interdisciplinary approaches in their professional programs, and **it would be rewarding to see similar efforts occur in Nevada**. Many other states are also actively working to develop One Health curricula, primarily by incorporating faculty with interdisciplinary training into their public health courses to enhance their clinical and preventive medicine concepts and methods.

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