



## Who coined the term “One Health”? Cooperation amid the siloization

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### ABSTRACT

This short communication is an effort to describe and elucidate the trajectory of the modern historical concept of “One Health.” It is dedicated to the many integrated approaches of health closely related to One Health, while also recognizing the contribution and origination of One Health perspectives/notions from those that have led the way and spearheaded this movement while considering Indigenous cultures across the world. The effects of synergies of those involved in building these integrative approaches are potentially bigger and better lasting than the sum of the individual players. It is only through collaboration, cooperation and diplomacy that we can achieve impactful transformation to benefit health. In this commentary, we aim to appropriately and accurately describe how the current use of “One Health” came to be and who were the main players.

Much attention is given to groups and individuals regarding credit for paradigm shifts, development of scientific concepts, and initiating public movements. One Health (OH) is one such concept, shift and movement; while it has been practiced for centuries, it was only recently named and to that, there is confusion in the origination of this designation into the current culture. Modern One Health has been through a two-step process, the first step being the research and academic fields. The concept was introduced initially in academic circles, then the second step is the adoption as a global movement, going beyond the scientific concept and translating into popular culture. For instance, public health outreach programs in Latin America and the pastoralist community programs in Africa have existed for over 30 years without such “One Health” designation, until recently. This bottom-up action to implementation is a more grass-roots approach to support the creation of public health policies compared to the top-down approach where policy is implemented from the government levels (local, national, global) [1].

For the readers reference the most recent definition of One Health, as of this writing, is provided by the One Health High Level Expert Panel (OHHLEP) who provided consensus for a definition of One Health (OH) as there were many circulating, each varying slightly depending on

one’s scope and mission [2].

A culture of recognition has developed along with scientific exploration and theoretical discussions. The scientific community tends to award first achievements, such as knowing who did what, and when, but we ask, why is this important? It is important because it gives credit and recognition where it is due, recognizing those individuals and communities who are champions and pioneers. These novel thinkers are of paramount importance to our world - catalysts to change and advancement.

There are instances where two similar ideas arose independently and simultaneously in different parts of the world. Like parallel evolution, we argue it is less about who did it first but appreciation instead, of how the idea(s) arose and who was involved in creating it to be what it is today. Details between the lines of who coined “One Health” tend to be glossed over in many accounts of this important trajectory and incomplete facts are (continuously) disseminated.

We challenge the reader to join us on this search through the recent history of “One Health” and its evolution, acknowledging those involved in creating the current One Health Movement. We also recognize and consider the roles of cooperation and diplomacy. Cooperation, defined

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as: “working together toward a shared aim” [3] is analogous to biology’s symbiotic relationships among organisms, it expresses manifestations of collaborative dimensions. Diplomacy is the “art and science of maintaining peaceful relationships between groups or individuals” [4]. Both are important considerations in this discussion. Intellectual property is the currency used in academic research, and therefore attribution and recognition of ownership of ideas is important. While it is easy to discuss traits that arose simultaneously in evolutionary biology, arguments can become contentious when discussing *ideas* that arose parallel to one another in history. With this, we ask the reader to consider the importance of scientific collaboration into the argument. While collaboration has a shared ownership of goals, cooperation is instead based on shared work to achieve each individual (sector’s) goals. For those wanting to work together, cooperation and collaboration may be basically the same. Such partnership and alliance arising from and for this approach should always be mentioned as the crucial pathway for successful implementation and development of One Health.

There is no question that “One Health” *theory and approach* have been practiced for centuries well before its official naming, as there have always been indigenous peoples and other less recognized groups that inherently apply core values and resources to systems-thinking ecosystem-approach to health [5–7]. There are early publications from the 1980’s and – 90’s that incorporate human and animal health through the lens of their influence from their environment and how their environment is influenced by them [8–17]. More complete and exhaustive resources exist on this elsewhere (Savic S, One Health CABI Textbook, in process of publication), but we aim to make the point that One Health was not ‘created’ or ‘discovered’- it was simply *named*. This inherent understanding that everything is connected to everything and that all living beings depend on their environment (abiotic and biotic) as much as the environment depends on them, is not new! Given climate change and worsening natural hazards, abiotic factors such as sunlight, wind patterns, temperature and precipitation or salinization in the coastal areas and regions should be considered in One Health approaches and actions.

Literature sources reflect that the term “One Health” was first used publicly associated with the emergence of severe acute respiratory disease (SARS) in early 2003 and that the term was echoed and amplified in the goal-oriented strategic ‘Manhattan Principles’ in 2004 [18,19].

The authors questioned who it was that initially used the term “One Health.” One of the many origins that can be identified in 2003 is a published interview with William Karesh by Rick Weiss from the Washington Post [20]. The article focused on the decimation of Africa’s gorilla and chimpanzee populations due to Ebola and the risk of cross over into humans due to the encroaching human populations into the forest:

*“Human or livestock or wildlife health can’t be discussed in isolation anymore,” Karesh said. “There is just one health. And the solutions require everyone working together on all the different levels”* [20].

Other origins or sources need to be mentioned as well – for example Jakob Zinsstag was leading One Health transdisciplinary actions in the footsteps of Calvin Schwabe in the 1990’s. The work of Zinsstag and colleagues early on in One Medicine (predecessor to One Health) involved pastoralist communities in Africa that set the building blocks and foundation for the next OH great contributors [21]. The One Medicine concept promotes collaboration between the medical and veterinary disciplines to benefit both human and animal health, typically framed around infectious diseases. One Medicine is the precursor concept to One Health and discussion of each is often presented together. While occasionally, they are (inappropriately) used interchangeably, they are distinct from one another [22]. As always, the paradigm continues to shift and has incorporated ecosystem health (EcoHealth) which extends to the whole ecosystem, holistically. William Karesh is usually credited to be the first one quoted using the term “one health.” However, as Cassidy (2017) points out, it is not uncommon to

find reference to Schwabe and Zinsstag when researching origins of One Health [23], and the authors wish to equally include tribute to their important, and equal contributions in this arena.

The term “One Health” was also circulated in March 2003 in a briefing packet for a collaborative conference with WCS (World Conservation Society), IUCN SSC Veterinary Specialty Group (International Union for the Conservation of Nature), and IUCN SSC SASUSG (International Union for the Conservation of Nature Species Survival Committee Southern Africa Sustainable Use Specialist Group). The meeting introduced the launch of an initiative called AHEAD- Animal Health for the Environment AND Development at the World Parks Congress in Durban South Africa, highlighting the importance of the “one health” perspective describing its importance [24]:

*“As socioeconomic progress demands sustained improvements in health for humans, their domestic animals, and the environment, our institutions recognize the need to move towards a ‘one health’ perspective- an approach that we hope will be the foundation of our discussions in Durban”* [24].

Interestingly, this preliminary booklet from 2003 includes Dr. Michael Kock’s abstract describing his work on The Health Paradigm and disease control: “...monitoring of the overall condition of the ecosystem and its components in an ‘umbrella’ fashion contributing towards the well-being of people, livestock, wildlife and the environment,” [25] reminiscent of the Swedish and One Health Initiative collaborative effort, the One Health Umbrella [26]. The One Health Umbrella is a visual depiction published over a decade later described by Gibbs (2014), of how One Health is an overarching principle for many disciplines [27].

Shortly thereafter, in July Wilcox & Aguirre (2004) published “One Ocean, One Health” in the first volume of EcoHealth Journal where they summarized [28]:

*“... the interdependence of health across the diverse species and systems within the biosphere-providing the impetus for a ‘one health’ perspective that bridges human, wildlife, and ecosystem health”* [28].

In the same year, the Manhattan Principles [19] were introduced at the One World, One Health (OWOH) Conference in September 2004, organized by WCS (Wildlife Conservation Society), thereby advancing the One Health movement by inviting representatives from WHO (World Health Organization), UN FAO (United Nations Food and Agriculture Organization), CDC (Centers for Disease Control), IUCN, and other stakeholders. Following this in 2005, The Lancet published an article from Zinsstag and colleagues where the authors describe the early expansion of One Medicine into One Health [29]. The historic 2007 ‘One Health’ liaison between the American Veterinary Medical Association (AVMA) and American Medical Association (AMA) resulted in what has been referred as “One Health Initiative” from the ‘One Medicine-One Health’ historical perspective. [30]

One Health, initially focused mostly on zoonotic diseases, has evolved in the last decades and included many other complex issues such as antimicrobial resistance, re-emerging infectious and chronic non-infectious diseases, environmental contamination, climate change, food safety/security, loss of biodiversity, economic sustainability, social-ecological systems, traditional indigenous knowledge, oceans health, etc. requiring adoption of a more transdisciplinary approach and multi-disciplinary competencies [17,28,31–34].

While the environment has always been part of the OH ‘approach,’ it was the addition from the ecosystem health perspective that extended its reach, thereby embracing and recognizing the integral importance of the environment within One Health, beyond individual health of humans or animals. This highlights the constantly growing evolution of ideas and proves the necessity of contributions from different arenas, exemplified by the growing influence of Planetary Health. The Planetary Health concept has gained high-level attention and support in recent years, favoring an anthropocentric perspective, highlighting the broad recognition that our environment (heavily) impacts human health [35]. The

'Berlin Principles' are an 'update' of the Manhattan Principles [36] which used the term One Health for a broader public in 2019. Furthermore, The Berlin Principles also emphasized One Health in an economic and socio-politic context with an urgent call for a more cooperative interaction at all levels of society.

In 2022 and 2023, the World Health Summit (WHS) was held in Berlin bringing together Quadripartite leaders (UNFAO, United Nations Environment Programme UNEP, WHO, and World Organization for Animal Health WOAH), health professionals, ministries and stakeholders for important public policy discussions and governance decisions for the future of One Health. A pre-workshop "Breaking Barriers: Advancing the One Health Agenda with a Focus on Environment" [37] preceded the 2023 WHS. The "Breaking Barriers" event worked to strongly promote the agenda emphasizing the environmental pillar towards action, creating important collaborative decisions for the future of One Health, Ecohealth and Planetary Health. Planetary Health, One Health, Ecohealth, Climate Change, Population Health, Global Health, and all other "Health's" must come together and bridge as an *integrated* health to fortify sustainable actions through on-going scientific, economic, social, cultural and political One Health discussions.

Centuries ago, societies faced enormous pressures such as droughts, floods, famine, diseases, wars, and natural disasters. Agricultural civilizations depended on livestock (domesticated) animals, and indigenous populations lived intrinsically whole and spiritually interconnected with Nature [38]. Researchers have studied ancient civilizations to understand why they collapsed – understanding that in many cases they exhausted the resources in their environment [39]. Humankind has acquired the knowledge and capacity to modify the environment to their advantage for survival, to the extent of risking to destroy it. The One Health approach has tried to reconcile the capacity of modification of the environment with the destructive element. Knowledge about how the health of people is intrinsically connected to the health of animals, plants, and the environment has the potential to mitigate the destructive capacity of anthropogenic modifications. Therefore, we thank those actors for introducing (and re-introducing) the term to build the One Health foundational blocks together in the Global North and South. We aim to provide recognition that through cooperation, collaboration, inclusion, peace, trust, respect, and diplomacy, the One Health field has grown - and we recognize that in many ways the knowledge and terminology evolved *back* to what the indigenous peoples from across the world have been living and practicing for over 10,000 years.

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There are no conflicts of interest to disclose.

## Data availability

No data was used for the research described in the article.

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