

# Accepted Manuscript

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PII: S0277-9536(14)00739-4

DOI: [10.1016/j.socscimed.2014.11.016](https://doi.org/10.1016/j.socscimed.2014.11.016)

Reference: SSM 9805

To appear in: *Social Science & Medicine*



Please cite this article as: Craddock, S., Hinchliffe, S., One world, one health? Social science engagements with the one health agenda, *Social Science & Medicine* (2014), doi: 10.1016/j.socscimed.2014.11.016.

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# One world, one health? Social science engagements with the one health agenda

Susan Craddock and Steve Hinchliffe

'One world, one health', as an integrated response to shared or interspecies health concerns, seems to have found its time. As a generalised and flexible term that captures the will to address the complexities and interrelations that exist between human, animal and ecological health, it is undoubtedly timely and gaining traction. As a call for inter-disciplinarity, and the general alignment of health and other concerns, it is circulating through research institutes, international health related bodies and commercial organisations. Fuelled in some considerable part by the emergence and re-emergence of infectious diseases, many of which involve multiple hosts and vectors, the term references a single bio-communicable planet (one world) that requires greater cooperation, and coordination, in order to prevent and prepare for inevitable if indeterminate disease events (one health) (McCloskey, Osman et al. 2014). And yet, despite this call for inter-action, to date the approach and the programme has tended to offer few opportunities for serious social scientific contributions or engagement. This despite a long history of social science engagement with health and medicine (notably in the pages of this journal) as well as more recent interest across the social sciences in inter- or multi-species relations (Braun 2008, Haraway 2008, Kirksey and Helmreich 2010). This special issue seeks redress, providing an opportunity for social scientists to reflect on, respond to and develop 'One Health' in ways that are informed by a range of social science approaches.

Here, by way of introduction, we do two things. First we briefly trace a history of the term before offering some thoughts on why and how it has gained traction in recent years. Second, we draw out four themes that emerge from this social scientific engagement and from the set of commissioned papers. We do so in order to emphasise rather than exhaust the vital role that a social scientific and critical imagination can bring to the One Health approach. We, and the broad range of social scientists involved in this collection of papers, argue that, without proper social science engagement, the One Health approach is at risk of derailment. The failure to recognise and respect a diverse range of approaches to and understandings of health, of social and cultural difference, of uneven power relations and of the need to pay attention to how associations between disparate worlds are configured, will reduce the efficacy and legitimacy of the knowledge produced. The aim of the issue is, then, to develop opportunities for critical and constructive social science engagement with One Health.

## What is 'one health'?

'One world, One Health' is a statement that does at least two things. First it speaks to a global and inter-species sharing of health concerns and interests. Implicitly or explicitly, it references a familiar 'small world', 'global village', 'single planet' sentiment. A shrinking world, compressed in terms of time and space, is one where a disease event can be felt almost instantaneously in surrounding states and on distant continents. This expression of one-ness not only refers to the overcoming of distance between formerly distant human populations, it also references a demise of species barriers. As humans expand their range and activity into formerly wild spaces, and as animal populations are inflated and homogenised under the conditions of global agriculture or rendered less stable under conditions of rapid environmental change, the one-ness of one health becomes an inter-species phenomenon. It is these cross-species links that underlie a radical re-statement of and interest in the (positive as well as negative) interdependencies that exist between the health of people, nonhuman animals and ecologies. Second, and following on from this, One World One Health is an injunction to join up areas of expertise and practice, which have for too long existed in separate silos. It requires, for example, both animal experts and human health experts to identify a transmission hotspot or site of 'viral traffic' (Morse 1993) and / or 'spillover' (Quamenn 2012), where the conditions for microbiological 'chatter' (Wolfe 2011) result in the transfer of infection from nonhuman to human animal hosts.

The first part of this (interconnection) is usually taken as self-evident. Indeed, and combined with the "multifactorial, often unpredictable evolution of human-animal-pathogen relations" (Nading 2013: 65), it forms a core set of beliefs, an ontology even, that is rarely questioned or qualified (though see Hinchliffe, this volume). The second element (inter-disciplinarity) has been a key way in which the concept of One Health has been framed, so it is worth briefly rehearsing some of the history of the call for greater inter-disciplinarity.

Medical and veterinary expertise started to appear as separate spheres of practice and activity in medieval European universities. This division of clinical expertise in the treatment of people and nonhuman animals was nevertheless troubled by the advent of cellular pathology in the nineteenth century. Bacteriology and process views of disease led scientists like Rudolf Virchow to call for a form of comparative medicine, and to lobby for stronger training links between veterinary and medical schools (Saunders 2000). Even so, and despite these promising early interventions, it wasn't until 1976 that the concept of 'one medicine' was formally coined by Calvin Schwabe (Schwabe 1984). As Zinsstag and colleagues summarise, the one medicine concept was an extension of comparative medicine, with a recognition that "there is no difference of paradigm between human and veterinary medicine" (Zinsstag, Schelling et al. 2011: 148).

But the 'one medicine' label retained something of a clinical connotation (Zinsstag, Schelling et al. 2011), and was itself soon extended through concepts of veterinary public health and the conservationist-led emphasis on the key roles of wildlife and habitat degradation in the emergence and transmission of infectious and zoonotic diseases. As we mentioned earlier, a key driver for this extension was a renewed focus on 'emerging' infectious diseases in the 1990s and the appearance of zoonotic outbreaks such as AIDS, Marburg, West Nile, Ebola, and others. 'One Health' arose from this mix and was soon adopted by major international health-related organisations. The World Health Organisation (WHO), the World Organisation for Animal Health (OIE), and the Food and Agricultural Organisation (FAO) signed a tripartite agreement in 2010 "for sharing responsibilities and coordinating global activities at the human-animal-ecosystems interface" (Zinsstag, MacKenzie et al. 2012: 108). This was a shared vision of "a world capable of preventing, detecting, containing, eliminating and responding to animal and public health risks attributable to zoonoses and animal diseases with an impact on food security through multi-sectoral cooperation and strong partnerships" (FAO, OIE et al. 2010).

### **Why Now?**

Given this struggle for recognition, we may ask why 'One Health' now? Perhaps more importantly, what are the effects of this new traction; how, in other words, has the One Health agenda been shaped by its conditions of possibility? The first question may have an awful lot to do with a world where security and insecurity have become key components of both science and international political organisation. Clearly, emerging infectious diseases (EIDs) are one component of political insecurity (Cooper 2006). It should be possible here to say that their positioning as part of a post-9/11 zeal to make the Global North as impregnable as possible does not in any way undermine the sense that there are real and terrifying threats. We may, though, at least question how health has become part and parcel of this discourse of total security and with what effects? Whose health is being emphasised? Which economies are being secured? Does emphasis of one set of health issues and disease types lead to neglect of others?

'Why now?' may also relate to a broad post-disciplinary mood inside and outside academia, captured by the grand challenges beloved of funding agencies, partnerships and universities alike. A shrinking funding pot, fiscal transparency, as well as recognition of the post-disciplinary nature of many of the world's challenges have all certainly forced academics and practitioners to develop networks and intellectual cooperation. Beyond the academy, impact and leverage is achieved through greater partnering with commercial and non-profit organisations, and, it should be added, a re-organisation of state finances away from straightforward funding for science and towards private-public partnerships. These shifts clearly have effects on innovation as well as care (for examples see Craddock, Lezaun and

Porter, and Yates-Doerr this volume). Some may be beneficial, driving greater cooperation across sectors and with actors that have not necessarily worked together before. But we need to be watchful of old habits and new interests in these alliances. When one set of influential authors state that “The one-health approach (...) could potentially enhance alignment of global health and trade priorities” (McCloskey, Osman et al. 2014: 1001) then we start to take notice of slippages between partnerships and sometimes hidden assumptions regarding economic growth and liberal governance.

As we have started to intimate, ‘why now’ questions lead us to ask questions concerning the effects of this sudden sedimentation or crystallisation of One Health. The drive to post-disciplinary and trans-disciplinary work is not necessarily innocent. Indeed, as Smith and colleagues note in their contribution to this collection, One Health is “part of the emergence of an assemblage of international institutions, coordinating bodies, new organisational forms and policy initiatives that have coalesced and interact with, sustain, and promote particular ways of conceptualising, and doing global health”. In other words, partnerships are rarely neutral. The relations they entail can have effects. One possibility is that One Health reproduces a rather top down version of scientific expertise, with the role of social science (if any) being relegated to easing delivery and dissemination of pre-established knowledge. One Health authors suggest, for example, that “what can be achieved in one health will depend on the ability of society to *understand and accept* scientific evidence and guidance for one health. Operationalizing this guidance can be enhanced by understanding being gained from a growing body of social scientists working on these linkages” (Zinsstag, MacKenzie et al. 2012: 109, emphasis added). We are pleased to hear that social science is valued in one health, but the implication that there is a deficit of public understanding and that social science is largely relegated to communication seems to follow directly from the kind of top-down assemblage that Smith and co-authors identify. More than grating disciplinary nerves, it is also indicative of a failure of understanding on the part of the protagonists. As becomes clear in the papers assembled here, One Health won’t succeed without serious *engagement* and cooperation (rather than passive understanding) of all kinds of actors, and without a serious and rigorous study of the associations (the sociabilities) that make health possible and ill-health and or disease more prevalent.

Meanwhile, even this is not enough. No amount of persuasion or enhanced understanding or indeed engagement will be possible if we don’t recognise, for example, the severe conditions that many people and animals are subjected to through their differential positioning or placement in social settings and economic markets (see Wallace, Bergmann et al. this volume). Livelihood, farming practices, gender roles and so on are seldom a matter of choice or open to change through behavioural nudges or top-down efforts to raise public understanding. The complex cultural and economic relations that people have with nonhuman animals and with each other require proper consideration in any attempt to

understand, theorise or indeed model health relations. Again, this will not involve telling people how to behave; it will require social science-led analysis of the configurations that make health a more, or less, likely outcome.

## Four tasks for social science

Social science, in this account, starts to open an analysis of One Health's priorities and the possible limitations OWOH currently and possibly unnecessarily confronts by virtue of its current formulation. The papers assembled here, which arise from a variety of disciplinary and thematic areas, will add detail to these and other concerns, but for now we have distilled four 'tasks' that may provide particular foci for social scientists in the one health debate. They are: Foregrounding uneven geographies; Problem framing; Analysing relations; and Re-distributing expertise, and we will take each in turn while pointing out papers in the collection that develop these tasks further.

### 1. Foregrounding uneven geographies

Social scientists can play a vital role in questioning the integrity of one world and one health concepts by elucidating the effects uneven power relations, discrepant risks, and variable access to resources have on vulnerabilities and responses to disease outbreaks. Without detracting from the basic idea within OWOH that modes of globalization including travel, commerce, and migration (of humans, animals, and pathogens) create transmission risks and patterns exceeding any particular geographic region, several papers in this volume point in various ways to the critical facts that not everyone (or, indeed, every species) is equally at risk, not every country is equally able to recognize and respond to disease outbreaks, and not all actors in disease interventions possess equal financial or political leverage to effect change. Sarah Paige and her co-authors for example discuss the need to develop a more critical, post-colonial lens attuned to local understandings and uneven political landscapes of risk and response. Sara Woldehanna and Susan Zimicki similarly urge us to expand the One Health concept to take in the critical role of livelihood, gender, age profile and so on, in shaping the ways in which human-animal interactions are constituted. The broad message here is that One Health requires an account of social as well as ecological diversity from the outset and not simply as a means to communicate scientific knowledge. Even within so-called Northern states where one might expect more uniformity in terms of risk, as Steve Hinchliffe points out, OWOH discussions are missing a concept of spatial configuration, or the locational aspects of risk. The latter alert us to differentials in risk and vulnerability that can be based on uneven access to resources as well as the intense pressures that are placed on precarious human and nonhuman animal bodies in agriculture, a point developed in Wallace et al's paper. In a related theoretical register, and turning more directly to responses, Francisco Tirado, Andres Gomez, and Veronica Rocamora question what 'the global' means

in OWOH discourses, using Bruno Latour's notion of a panorama to highlight the point that epidemics do not in fact spread seamlessly across the globe, but rather are characterized by gaps, unknowns, and dynamic change. As they demonstrate for the 2009 H1N1 pandemic, even what becomes defined and understood as an epidemic requires analysis in terms of who is involved in shaping knowledge, action protocols, and global responses. Susan Craddock likewise argues that responses to epidemic outbreaks are themselves laden with power relations and Javier Lezaun and Natalie Porter point out in their article that OWOH containment approaches focusing on surveillance are especially difficult for low-resource, endemic countries given the high-tech, intensive, and expensive nature of surveillance apparatuses. Finally, the issue of there being more than one world recurs in various ways. Emily Yates-Doerr in her paper on scientists responding to food (in)security by creating 'insects-in-a-box,' also pushes up against OWOH focus on singularity, on the 'world' as a relatively homogeneous entity. When scientists try to scale up insect production as a potential means to feed growing human populations, they collide with the realities that in order to succeed they need to be attuned to regional differences in food sensibilities, appetites, and markets.

## 2. Problem Framing

In the second theme, authors in various ways question the apparently organic framing of health, disease, and the global in OWOH literature. Not only are some diseases easily encompassed and others not within OWOH frames, but the insistence on neutral, simplified concepts of globalization, collaboration, and connection are revealed to be both inappropriate and inadequate when applied to the complex milieu of on-the-ground epidemic dynamics. James Smith, Emma Taylor, and Pete Kingsley question, on political and institutional grounds, the diseases most often at the centre of OWOH analyses, pointing out that too often it is because "there is traction in the transportability of risk" rather than because of disproportional suffering and loss. They go on to question how understandings of global convergence and integrated approaches to controlling zoonotic disease compare to local/national realities. In their case study of African Trypanosomiasis in Uganda, they find a disconnect between a disease that might lend itself to the proposed ideals of interconnected investigation and institutional funding that is OWOH, and the realities of local practices, constrained resources, and government limitations. Melanie Rock and Chris Degeling argue that environmental ethics are weakly articulated with public health and nonhuman ethics in OWOH rhetoric, resulting in attenuated force for all three. Incorporating environmental justice and multi-species flourishing into a broadened ethical framework for OWOH results in a 'more than human' solidarity, while it also expands the remit of OWOH to include multi-species suffering as well as alerting us to the clear health benefits of well articulated human-nonhuman relations. Robert Wallace and colleagues introduce what they call a 'structural' OWOH that focuses critical attention on the pathogenicity of current global industries such as chicken farming, whereby methods honed over time to increase scale and efficiency of

chicken production have at the same time increased efficiencies as well as virulence of viruses such as H5N1. A OWOH health approach that does not take into full account the profound imbrication of neoliberal economies with epidemic ecologies is one largely emptied of epistemological integrity. Meike Wolf in her paper asks fundamental questions concerning specificities of globalization, and whose bodies are being included in calls for OWOH approaches. She also reminds us of the sociality of disease, and that human practices themselves change not just environments but genomes and bodies. Finally, Lezaun and Porter reveal through a comparison of transgenic animal and OWOH approaches the different understandings each has of disease itself, and appropriate interventions into it. The first pivots around competition – i.e., genetically modified animals outcompeting other animals – while the second insists upon containment. With transgenic approaches, it is not so much the interface between discrete animal natures that matters but rather the interactions and encounters creating ‘new and unpredictable agencies’. Lezaun and Porter thus simultaneously broaden the frame of how we might imagine the boundaries and norms of intervention, while reminding us that attempts to redress the effects of ill health themselves galvanize new biosocial relations the consequences of which cannot always be entirely foreseen.

### 3. Analysing relations

While commending OWOH calls for more attention to human-nonhuman interactions and the benefits of multidisciplinary collaboration, social scientists in this volume and beyond seek to make these often vague conceptualizations more empirically as well as theoretically specific. One way this happens is by demanding greater attention to the myriad configurations, textures, and dynamics of human and nonhuman relations as these coalesce across particular regions and as a result of highly variable forces and factors. A second intervention is to highlight the ways in which relations – environmental, institutional, market – can produce precarious bodies as well as precarious collaborations in the interests of better health. Several papers in this volume seek to theorize the multitextured, and highly dynamic ways actors, institutions, circumstances, and forces come together or are held apart in OWOH-related approaches. We have already mentioned Smith et al’s characterisation of the assemblage that is One Health. Susan Craddock asks under what conditions disparate partners come together and create productive friction even with divergent motives and agendas, and when they do not come together. It is vital, she argues, to interrogate the effects of new kinds of connections, how for example, Product Development Partnerships involving commercial, governmental as well as non-governmental organisations are constituted and have effects: “It cannot be presumed” she argues “that partnering always generates mutual understandings, or more equitable and effective responses” (Craddock 2014). And Inge Mutsaers reverses the analysis and asks how a One Health approach can add greater explanatory richness to an immunological framework derived from the writings of Peter Sloterdijk. OWOH’s focus on interdependencies along with Sloterdijk’s discussion of

somatic and socio-political immune responses produces a keener understanding of vulnerability as something that is inevitable, and biosecurity threats as not necessarily something to attack (i.e., an autoimmune response) but more effectively respond to (multi-targeted immune defences).

#### 4. Re-distributing expertise

Finally, several of the papers argue that the emphasis in OWOH approaches on professional experts – global institutions, veterinarians, physicians, public health officials- can under-value other voices and agencies and efface other less easily codified forms of expertise. Tamara Giles-Vernick provides an exquisitely nuanced example of why it is critically important to listen to the voices of communities in the midst of endemic or epidemic diseases in order to more effectively gauge appropriate responses. In her look at buruli ulcer in Cameroon – a disease she notes is typically outside the radar of OWOH literatures – Giles-Vernick conveys oral histories of villagers rich in memories of ecological, social, and cultural changes that in fact end up being key to understanding why buruli ulcer outbreaks are currently more frequent, and why they take on the particular demographic and regional patterns that they do. Maria Lapinski, Julie Funk, and Lauren Moccia focus on the unharnessed promise of communication strategies for gaining deeper understandings of knowledge production and connection across distances, as well as the challenges arising from the application of information systems to health. In their multilayered analysis, these authors argue that communication technologies are more than just ‘tools’ in One Health interventions and responses, asking how some technologies might improve One Health interventions and outcomes if we understood better how people use them and how their incorporation into particular social contexts change decisions and practices. Jeanne Coffin and coauthors use participatory epidemiology including self-reporting exercises weighting the importance of particular diseases and their impacts to help determine not just actual anthrax cases in a region of western Uganda, but perceptions of anthrax and how it fits within broader social imaginaries of health and disease. They argue that this among other methods can help pinpoint the need for educational outreach but also the kind of outreach that will more likely be heard and understood. Finally, Sarah Paige and co-authors, like Giles-Vernick, argue for hearing local understandings not just of disease but of transmission and risky behaviours. They insightfully point out that it does not matter whether these are sometimes inaccurate; their importance lies in making researchers aware of what, why, and how diseases are relevant – or not- in particular regional contexts.

We have of course not attempted, and would not attempt, to be exhaustive in our coverage of what social scientists might offer OWOH approaches. Rather, in this volume we have indicated four foci lending themselves to rich and variable social scientific analyses. Our contributors, in turn, have exemplified why it is critically important to engage in OWOH approaches, and the virtually boundless optics with which social scientists can create

understandings of the interconnections of pathogens and practices that are simultaneously more complex, finely tuned, multitextured, and therefore more robust in their explanatory potential. These papers, then, are not just nuanced case studies or reflexive theorizations of health. They constitute a call to follow their lead in casting a serious yet critical eye toward what OWOH can offer in helping understand and effectively respond to regional and global health issues.

## References

- Braun, B. (2008). "Environmental Issues: Inventive life." Progress in Human Geography **32**(5): 667-679.
- Cooper, M. (2006). "Pre-empting emergence: The Biological Turn in the War on Terror." Theory, Culture and Society **23**(4): 113-135.
- FAO, OIE and WHO (2010). The FAO-OIE-WHO Collaboration: Sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interfaces: A Tripartite Concept Note. [http://www.who.int/influenza/resources/documents/tripartite\\_concept\\_note\\_hanoi\\_042011\\_en.pdf](http://www.who.int/influenza/resources/documents/tripartite_concept_note_hanoi_042011_en.pdf). O. FAO, WHO. Rome, Paris, Geneva.
- Haraway, D. (2008). When Species Meet. Minneapolis, University of Minnesota Press.
- Kirksey, S. E. and S. Helmreich (2010). "The emergence of multi-species ethnography." Cultural Anthropology **25**(4): 545-576.
- McCloskey, B., D. Osman, A. Zumla and D. L. Heymann (2014). "Emerging infectious diseases and pandemic potential: status quo and reducing risk of global spread." The Lancet: Infectious Diseases **14**: 1001-1010.
- Morse, S., S., Ed. (1993). Emerging Viruses. Oxford, Oxford University Press.
- Nading, A. M. (2013). "Humans, Animals and Health: From Ecology to Entanglement." Environment and Society: Advances in Research **4**: 60-78.
- Quamenn, D. (2012). Spillover: Animal infections and the next human pandemic. London, Vintage.
- Saunders, L. Z. (2000). "Virchow's contributions to veterinary medicine: celebrated then, forgotten now." Veterinary Pathology **37**: 199-207.
- Schwabe, C. (1984). Veterinary Medicine and Human Health. Baltimore, Williams and Wilkins.
- Wallace, R. G. (2009). "Breeding Influenza: The Political Virology of Offshore Farming." Antipode **41**(5): 916-951.
- Wolfe, N. (2011). The Viral Storm. London, Penguin.
- Zinsstag, J., J. S. MacKenzie, M. Jeggo, D. L. Heymann, J. A. Patz and P. Daszak (2012). "Mainstreaming One Health." Ecohealth **9**: 107-110.
- Zinsstag, J., E. Schelling, D. Waltner-Toews and M. Tanner (2011). "From "one medicine" to "one health" and systemic approaches to health and well-being." Preventive Veterinary Medicine **101**: 148-156.