

One Health for Human Health Clinicians  
Dr. Cheryl Stroud, One Health Commission  
A Webber Training Teleclass


# One Health for Human Health Clinicians: In light of COVID-19, are we approaching a tipping point?

Cheryl Stroud, DVM, PhD  
Executive Director  
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Hosted by Paul Webber  
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January 13, 2022



**One Health for Human Health Clinicians:**  
In light of COVID-19, are we approaching a tipping point?

**ONE HEALTH COMMISSION**



  
Cheryl Stroud, DVM, PhD  
Executive Director

Webber Training January 13, 2022

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- *What is One Health all about?*
- *The full scope of One Health (arenas in need)*
- *Examples of cross-professional collaborations*
- *Why are they important?*



No one profession can know *everything!*

***Collaborations***

start with

***Relationships!!***

*Which start when we  
come together in direct conversations*



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## What is One Health?

It is a *concept* and an *approach* that recognizes that the health of people, animals and the environment are *inextricably* interconnected.

## Not a new concept .....

However, it is .....

**A New  
Professional  
Imperative!!**

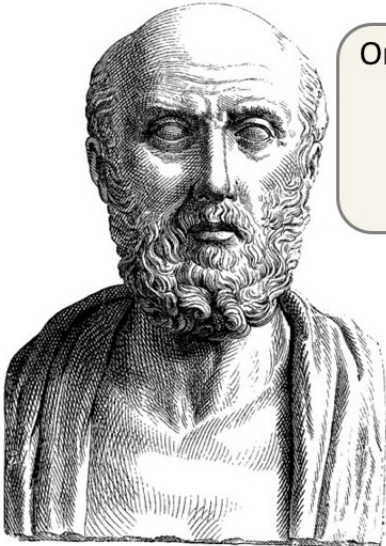




**Resurrecting an  
Ancient Wisdom**

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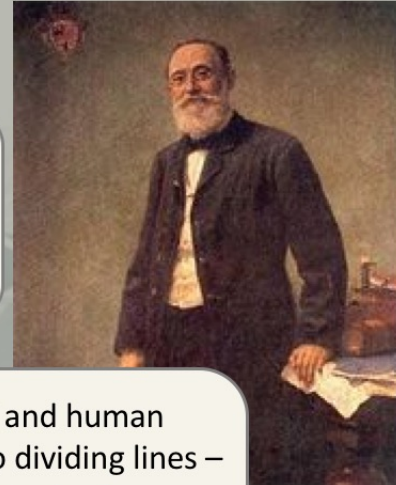
**Not a new concept .....**



**On Airs, Waters, and Places**

By Hippocrates  
Written 400 B.C.E.

Translated by Francis Adams



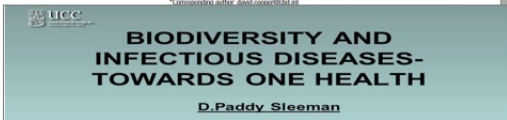
**“Between animal and human  
medicine there are no dividing lines –  
Nor should there be.”**

Rudolf Virchow, MD  
1880  
(Father of Cellular Pathology)

**Origins of the  
One Health Movement**

**The integration of biodiversity into One Health**

C. Romanelli, H.D. Cooper\* & B.F. de Souza Dias  
Secretariat, Convention on Biological Diversity, 433 St. Jacques, Suite 800, Montreal, H2Y1N9, Canada  
\*Corresponding author. Email: cooper@cbd.int



**Understanding One Health and its relationship to biodiversity**



When we consider the concept of health, our understanding often changes based on our perception. A doctor would think of human health, a veterinarian of animal health and a conservationist of environmental health.

**Healthy Parks  
Healthy People Central**

**Frontiers in One Health - Biodiversity Loss and the Rise of Emerging Infectious Diseases**

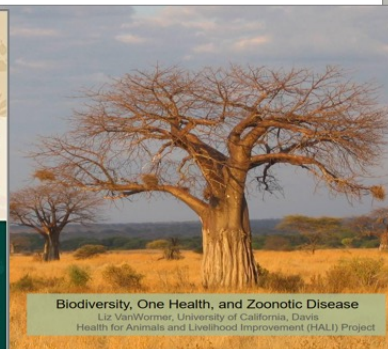
1,802 views

105

7 IUCNAEL E.Journal

**ONE HEALTH AND BIODIVERSITY CONVENTIONS  
THE EMERGENCE OF HEALTH ISSUES IN BIODIVERSITY CONVENTIONS**

Claire Lajaunie and Pierre Mazzega\*



**Biodiversity, One Health, and Zoonotic Disease**  
Liz VanWormer, University of California, Davis  
Health for Animals and Livelihood Improvement (HALI) Project

<http://www.hphcentral.com/article/understanding-one-health-and-its-relationship-to-biodiversity>

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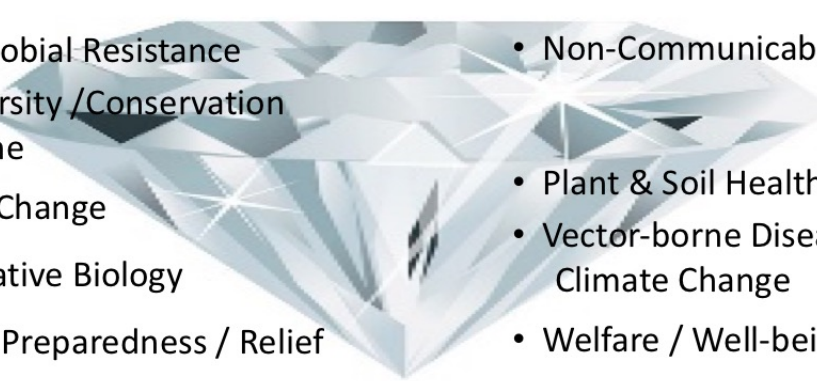
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## ***Many faces (arenas in need) of One Health***

- Animals as Sentinels
- Antimicrobial Resistance
- Bio-Diversity /Conservation Medicine
- Climate Change
- Comparative Biology
- Disaster Preparedness / Relief
- Economics/Complex Systems, Civil Society
- Food / Water Safety / Security
- Human – Animal Bond
- Non-Communicable Diseases
- Plant & Soil Health
- Vector-borne Diseases / Climate Change
- Welfare / Well-being of animals, humans, planet
- Zoonotic Diseases



## **Why do we need One Health?**

**'Because' Our *Systems have forced us into silos***

- Academic Tenure process
- Government Agency silos
- Industry Proprietary knowledge
- Publication systems – no access  
(See ' Open Science can Save the Planet '  
<https://goo.gl/8yIVQp> )
- Language barriers across professions (unfamiliar acronyms)



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### Animals as Sentinels



#### Elevated PBDE Levels in Pet Cats: Sentinels for Humans?

JANICE A. DYE,<sup>\*,†</sup> MARTA LINGYAN ZHU,<sup>‡,||</sup> CYNTHIA R. WARD,<sup>§</sup> RONALD A. HITES,<sup>‡</sup> AND LINDA S. BIRNBAUM<sup>†</sup>

*Environ. Sci. Technol.* 2007, 41, 6350–6356

*Environ Health Perspect.* 2012; 120(7):1049-54.

Research | Children's Health | and

#### Serum PBDEs in a North Carolina Toddler Cohort: Associations with Handwipes, House Dust, and Socioeconomic Variables

Heather M. Stapleton,<sup>1</sup> Sarah Eagle,<sup>1</sup> Andreas Sjödin,<sup>2</sup> and Thomas F. Webster<sup>3</sup>

<sup>1</sup>Nicholas School of the Environment, Duke University, Durham, North Carolina, USA; <sup>2</sup>Centers for Disease Control

*Environ Res.* 2016 Nov;151:145-153. doi: 10.1016/j.envres.2016.07.027. Epub 2016 Jul 29.

#### U.S. domestic cats as sentinels for perfluoroalkyl substances: Possible linkages with housing, obesity, and disease.

Bost PC<sup>1</sup>, Strvnar MJ<sup>2</sup>, Reiner JL<sup>3</sup>, Zweigenbaum JA<sup>4</sup>, Secoura PL<sup>5</sup>, Lindstrom AB<sup>2</sup>, Dye JA<sup>6</sup>.



Hyperthyroid cats

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## Animals as Sentinels

Free lead testing event for dogs in Flint water crisis



Maggie, a terrier mix, is held by Michigan State University veterinary student Courtney Andries, of East Lansing, while veterinary technician Monica Reinke, of East Lansing, finishes drawing her blood during a free lead testing event for animals on Saturday, March 19, 2016 at the parish hall of St. Paul's Episcopal Church in Flint. The event was held by the Michigan State College of Veterinary Medicine amid Flint's water crisis.

*Rachel Woolf | MLive.com*

[http://www.mlive.com/news/flint/index.ssf/2016/04/free\\_lead\\_testing\\_event\\_for\\_do.html](http://www.mlive.com/news/flint/index.ssf/2016/04/free_lead_testing_event_for_do.html)

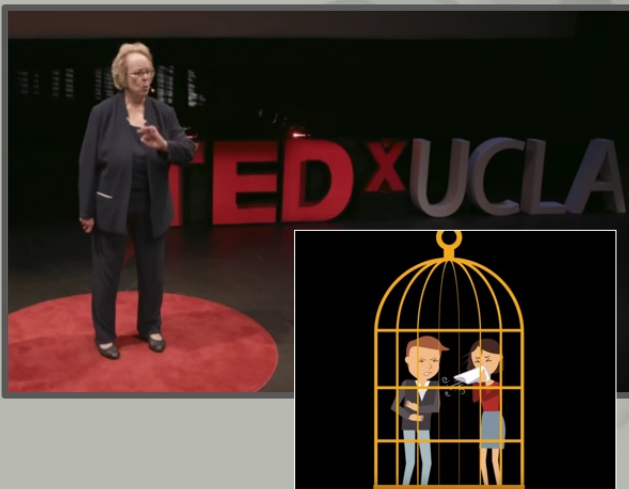
Testing for lead and other metals including copper, mercury, zinc, iron and mercury.

Dogs became Sentinels for what the people were being exposed to.

## Humans?? as Sentinels

The 1999 West Nile Story in the US

Tracey McNamara: (Human) Canaries in the Coal Mine



Our current funding structures are the 'opposite' of One Health. They virtually guarantee that we will not find an emerging zoonotic threat until we have people in emergency rooms or bodies in the morgue.

The Reality of Biosurveillance in the USA

Human Health  
\$\$\$\$\$\$\$\$\$\$

Agriculture  
\$\$\$\$\$\$\$

WL

Everything  
Else

June 21, 2018 <https://www.youtube.com/watch?v=qm8NnL582uc&t=61s>

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## Humans?? as Sentinels

Why we need biosurveillance of  
companion animals (pets) and wildlife



<https://www.nytimes.com/2017/01/12/nyregion/sick-cats-virus-quarantine-center-aspc.html>

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## Antibiotic resistance is the quintessential One Health issue

**Key words**    Antibiotics • Antimicrobial resistance (AMR) • Environment • Health  
• Livestock • One Health

### The scale of antimicrobial resistance

In May this year, the long-awaited final report from the *Review on Antimicrobial Resistance* was published.<sup>1</sup> The report estimates that the 700 000 annual deaths currently attributable to infections by drug-resistant pathogens will increase, if unchecked, to 10 million by 2050, running up a bill of US\$100 trillion in terms of lost global production between now and then. The reported numbers are somewhat

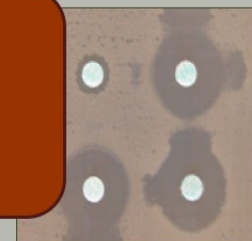
Oxford Journals, Transactions of the Royal Society  
Tropical Medicine and Hygiene, July 29, 2016



Laura Kahn, MD, MPH, MPP

What about  
AMR in  
companion  
animals??  
And in the  
Environment?

We share our microbiomes with those we live with, including our pets..... but pets are not under any surveillance systems.





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**Shared Environment and Microbiome**

**Antibiotic resistance in pets an increasing problem**

Filed Under: [Antimicrobial Stewardship](#), [MCR-1](#)  
Chris Dall | News Reporter | CIDRAP News | Aug 20, 2016

With antibiotic resistance emerging as an urgent public health issue, much of the focus has been on the rise of drug-resistant bugs in humans and farm animals. But what about those animals that share our homes, our hearts, and sometimes even our beds?



adagio/igphoto / iStock

That question has been raised in light of a recent study by researchers in China, who found that a pet shop worker, along with four dogs and two cats in the shop where he worked, were infected with a strain of *Escherichia coli* bacteria carrying the MCR-1 gene—a molecule that can confer resistance to the last-resort antibiotic colistin.

"These findings suggest that *mcr-1*-producing *E. coli* can colonize companion animals and be transferred between companion animals and humans. The findings also suggest that, in addition to food animals and humans, companion animals can serve as a reservoir of colistin-resistant *E. coli*," the authors of the study wrote.

<https://www.cidrap.umn.edu/news-perspective/2016/08/antibiotic-resistance-pets-increasing-problem>

**MRSA and Antibiotic Resistance in Companion Animals**

January 06, 2020 | ODH



Methicillin-resistant *Staphylococcus aureus* (MRSA) is a newly emerging strain of a common microscopic germ that lives on the skin and nasal passages of humans and some animals. It is present in about 1 percent of people in the United States.

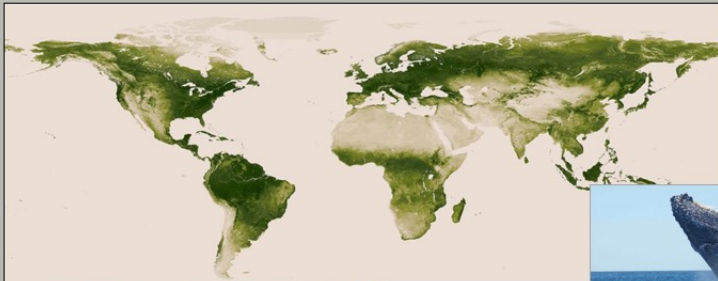
**MRSA can be a zoonotic infection (a disease that can be transmitted from animals to people).**

A person can transfer the bacteria to their pets, who can then transfer the bacteria back to family members.

<https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/zoonotic-disease-program/resources/mrsa-animals>

**Human Impact: Shared Environment and Microbiome**

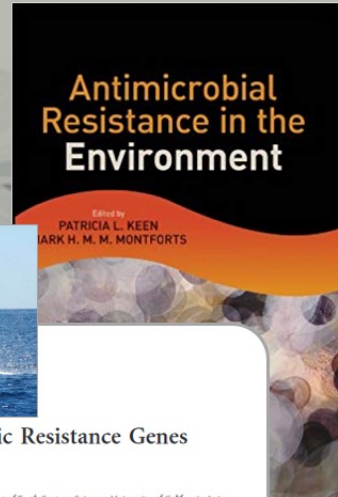
**Ocean Microbiome**



**The Ocean as a Global Reservoir of Antibiotic Resistance Genes**

Stephen M. Hatosy,<sup>a</sup> Adam C. Martiny<sup>a,b</sup>  
Department of Ecology and Evolutionary Biology, University of California, Irvine, California, USA<sup>a</sup>; Department of Earth System Science, University of California, Irvine, California, USA<sup>b</sup>

Citation Hatosy SM, Martiny AC. 2015. The ocean as a global reservoir of antibiotic resistance genes. *Appl Environ Microbiol* 81:7593–7599. doi:10.1128/AEM.00736-15.



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**Human Impact: Shared Environment and Microbiome**

Is fishmeal to blame for rise in antibiotic resistance?

A new study points to fishmeal as a potential cause for the rise in drug-resistant bacteria which might spell disaster for world health.



<https://www.newfoodmagazine.com/news/44098/fishmeal/>

**Human Impact: Antibiotic Resistance and the Environment:**



Advances in Antibiotics & Antibodies

Zhang et al., Adv Antibiotics Antibodies 2015, 1:1  
<http://dx.doi.org/10.4172/aaa.1000e101>

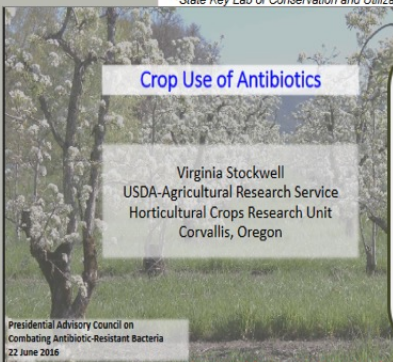
Editorial

Open Access

Application of Antibiotics for Control of Citrus Huanglongbing

Muqing Zhang<sup>1,2\*</sup>, Chuanyu Yang<sup>2</sup> and Charles A Powell<sup>2</sup>

<sup>1</sup>State Key Lab of Conservation and Utilization of Subtropical Agric-Biological Resources, Guangxi University, Nanning, 530006, China  
<sup>2</sup>University of Florida, Fort Pierce, FL 34945, USA



Three antibiotics are permitted by the U. S. Environmental Protection Agency for use in plant agriculture

1. Streptomycin since 1958.
2. Oxytetracycline since 1972.
3. Kasugamycin since Sept. 2014.
  - No clinical use of kasugamycin for humans or animals.
  - No cross-resistance with other aminoglycosides or tetracyclines.

Antibiotics are registered for specific crops:  
Primarily tree fruits (apple, pear, peach, and nectarine).

Antibiotics are not permitted for several crops, such as corn, rice, fibers, grains, grapes, or berries.

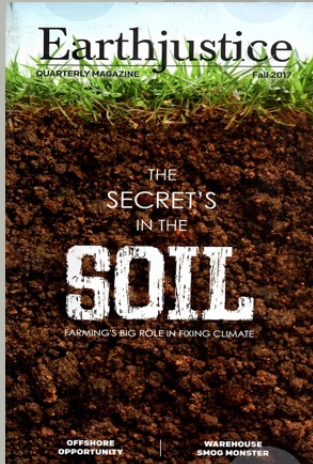


<https://www.hhs.gov/sites/default/files/virginia-stockwell-antibiotics-paccarb-2016-remediated.pdf>

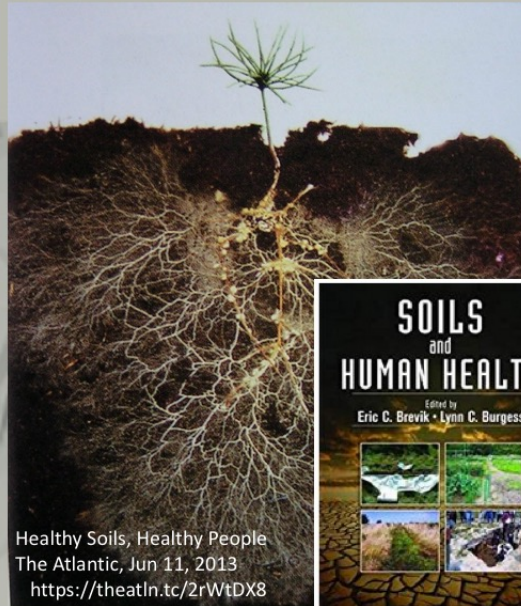


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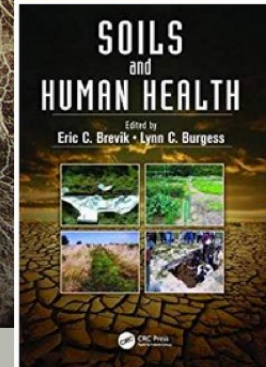
Healthy Soil Microbes,  
Healthy Plants,  
Healthy People



The microbial community in the ground is as important as the one in our guts.



Healthy Soils, Healthy People  
The Atlantic, Jun 11, 2013  
<https://theatlantic.com/2rWtDX8>



7-31-15 Papich-Shryock OH OM Final  
Published August 21, 2016 on the [One Health Commission](#) website  
[Narratives of One Health in Action](#)

### One Health – One Method of Antimicrobial Susceptibility Testing

Thomas R. Shryock, and Mark G. Papich

On behalf of the Veterinary Antimicrobial Susceptibility Subcommittee (VAST)  
of the Clinical and Laboratory Standards Institute (CLSI), Wayne, PA.

Antimicrobial resistance is a globally recognized issue; therefore, efforts to combat this problem have been initiated by international organizations such as the World Health Organization (WHO), the Office International des Epizooties (OIE) as well as national antibiotic action plans in the United States, the European Union, and other countries. Many associations, stakeholders and professional societies have made commitments to fulfilling various components of these plans to combat antimicrobial resistance.

One of the fundamental technical aspects in these initiatives begins in the clinical microbiology laboratory with antimicrobial susceptibility testing (AST). Laboratories that identify and test bacterial isolates for susceptibility to antimicrobial agents report the results that are used by epidemiologists, veterinarians, physicians, and research scientists, and other stakeholders, for many purposes. Clinicians use the data for treatment decisions, epidemiologists evaluate the data

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## Comparative Medicine / Translational Research



Plants  
Immunity/Defenses



Animal  
Immunity/Defenses





glioblastoma multiforme  
in humans





glioblastoma multiforme  
in dogs

The discoveries of how bacteria inject DNA into host animal cells were based on studies in plant systems. ....and involve elegant structures docking the bacterial and host cells.

**Meet Ohlin**  
The University of Pennsylvania's School of Veterinary Medicine is investigating using canine olfaction, along with chemical and nanotechnology analysis, to detect early stage ovarian cancer.  
OCBIA supports this ground-breaking research by sponsoring Ohlin.



Sniffing out ovarian cancer



**THE BOO RADLEY FOUNDATION**  
Healing Man and Man's Best Friend



**PUCCINI FOUNDATION**  
DEDICATED TO THE HOPE OF A FUTURE FOR PETS AND PEOPLE...  
CANCER FREE




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### Nakio becomes first dog to receive four prosthetic legs

By DogTime Staff

News outlets are calling Nakio "the bionic dog," and with good reason – the first known canine to have received four artificial limbs.




June 2011

<http://dogtime.com/trending/17650-bionic-dog-nakio-first-dog-to-get-four-prosthetic-legs>

### Man gets genetically-modified pig heart in world-first transplant

15 hours ago

January 2022



UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE

Surgeon Bartley P Griffith pictured with David Bennett earlier this month

<https://www.bbc.com/news/world-us-canada-59944889>



## ZOOBIQUITY CONFERENCE 6 Philadelphia









Zoobiquity: A Species-Spanning Approach to Medicine 2015

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### Disaster Preparedness / Relief / Response



1999 Hurricane Floyd

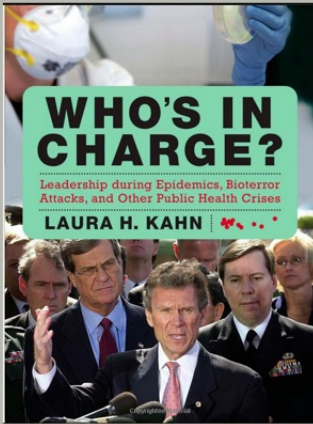




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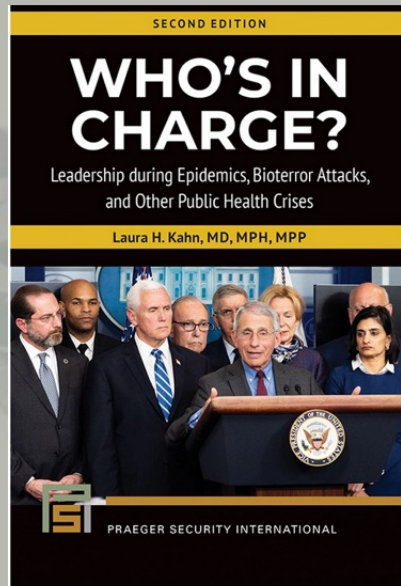
**Disaster Preparedness / Response**

Lessons from Katrina, a game changer in disaster preparedness and response –  
Don't Show Up without pet carriers!!!!



2009

<https://www.amazon.com/Whos-Charge-Leadership-Epidemics-International/dp/0275994856>



2020

[https://www.amazon.com/Leadership-Epidemics-Bioterror-Security-International-ebook-dp-B0876F2FFZ/dp/B0876F2FFZ/ref=dp\\_ob\\_image\\_bk](https://www.amazon.com/Leadership-Epidemics-Bioterror-Security-International-ebook-dp-B0876F2FFZ/dp/B0876F2FFZ/ref=dp_ob_image_bk)

*During a Health Crisis* is a really bad time for government (local, state, national) leaders and health officials to be exchanging Business cards.

Relationships and operating procedures need to be in place 'ahead' of a crisis!!!!

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## Food and Water Safety and Security





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Salmonella

Food Safety



Image by [klimkin](#) from [Pixabay](#)

Outbreaks of *Salmonella* Infections Linked to Backyard Poultry



Investigation Notice

Posted September 23, 2020 at 2:00 PM ET

CDC and public health officials in 49 states are investigating 16 multistate outbreaks of *Salmonella* infections linked to contact with poultry in backyard flocks, such as chicks and ducklings. The number of illnesses reported this year sets a record number of illnesses as compared to past years' outbreaks linked to backyard flocks.

Stay healthy around your backyard flock by washing your hands, keeping your birds outdoors, and supervising young children around your flock.

CDC estimates *Salmonella* bacteria cause about 1.35 million infections, 26,500 hospitalizations, and 420 deaths in the United States every year. Food is the source for most of these illnesses.

<https://www.cdc.gov/salmonella/>

- An estimated 600 million – almost 1 in 10 people in the world – fall ill after eating contaminated food and 420 000 die every year.
- US \$110 billion is lost each year in productivity and medical expenses resulting from unsafe food in low- and middle-income countries.

<https://www.who.int/news-room/fact-sheets/detail/food-safety>

Campylobacter

How does food and water get contaminated with *Campylobacter*?

*Campylobacter* can contaminate food and water in several ways.

Many chickens, turkeys, cows, and other animals that show no signs of illness carry *Campylobacter*. *Campylobacter* can be carried in the intestines, liver, and other organs of animals and can be transferred to other edible parts when an animal is slaughtered. In 2015, National Antimicrobial Resistance Monitoring System (NARMS) testing found *Campylobacter* on 24% of raw chicken bought from retailers.

Milk can become contaminated when a cow has a *Campylobacter* infection in her udder or when milk is contaminated with manure. Pasteurization makes milk safe to drink.

Fruits and vegetables can be contaminated through contact with soil or water containing feces (poop) from cows, birds, or other animals. Animal feces can contaminate lakes and streams. Washing or scrubbing fruits and vegetables and disinfecting untreated drinking water helps prevent illness.

<https://www.cdc.gov/campylobacter/faq.html#what>

Water Safety

True One Health Stories

1986

20 mo. old male, severe, chronic, watery diarrhea

Lasted over 6 weeks

Contagious: Mom got it, Dad got it, quite debilitating

Pediatrician treated symptomatically

Baby: dehydrated, losing weight

Both parents were DVMs.... Took soiled diaper to Vet School parasitologist



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## Water-borne Zoonotic Diseases

### Cryptosporidiosis

Protozoans: genus *Cryptosporidium*.  
This hopefully would be quickly identified today by pediatricians??

- Can be deadly in AIDS patients
  - Major outbreaks often result from waterborne transmission
  - Oocysts highly infectious and resistant to harsh conditions / cleaners (chlorine)
  - Human-human, animal-human, fecal-oral, and waterborne transmission
  - Cyclical life cycle!!!!
- Value of One Health:** Saving Lives

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Human – Animal Bond



**ANTIDEPRESSANT**



**No Words Needed ...**



Human-Animal Bond



Image by [veverkolog](#) from [Flibbay](#)

<https://www.cdc.gov/poxvirus/monkeypox/outbreak.html>  
2003



Learn about an outbreak of *Salmonella* Muenster infections linked to pet bearded dragons.



Learn about an outbreak of *Salmonella* Typhimurium infections linked to pet hedgehogs.

<https://www.cdc.gov/foodsafety/foodborne-germs.html>



Multistate Outbreak of Multidrug-Resistant *Campylobacter* Infections Linked to Contact with Pet Store Puppies

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**Human-Animal Bond**



*"Animal Disease and Human Trauma, emotional geographies of disaster"*

**Human-Animal Bond**  
**Social Environments -  
Mental Health**

**In the U.S. Animal Cruelty is now a Federal Felony**  
U.S. lawmakers have passed the *Preventing Animal Cruelty and Torture (PACT) Act*, closing legal loopholes in previous legislation. The new law builds on the *Animal Crush Video Prohibition Act*, which was passed in 2010. If convicted, animal abusers can face up to seven years in prison and fines. This is a notable event because of the link between animal abuse and violence against humans. <https://bit.ly/2qcSF7C>

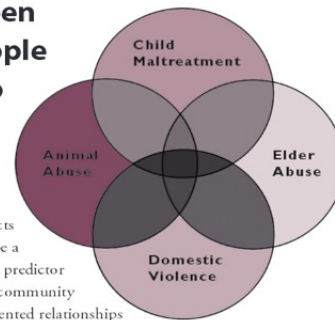


**Purina launches Purple Leash Project for Overlooked Victims of Domestic Violence: Pets**  
One in 3 women and 1 in 4 men will experience some sort of domestic violence in their lifetime. Many have pets. They should get out of their violent situations. But only 10 percent of domestic violence shelters accept pets, so they are faced with a terrible choice. <https://yhoo.it/2Kslsvt>



**NATIONAL LINK COALITION**  
*Working together to stop violence against people and animals*

**The Link Between  
Violence to People  
and Violence to  
Animals**



In recent years there has been renewed interest in an idea dating back centuries — that acts of cruelty against animals can be a sentinel indicator — and often a predictor — of other forms of family and community violence. Research has documented relationships between childhood histories of animal cruelty and patterns of chronic interpersonal

<http://nationallinkcoalition.org/>



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## Many faces (arenas in need) of One Health

- Animals as Sentinels
- Antimicrobial Resistance
- Bio-Diversity / Conservation Medicine
- Climate Change
- Comparative Biology
- Disaster Preparedness / Relief
- Economics/Complex Systems, Civil Society
- Food / Water Safety / Security
- Human – Animal Bond
- Non-Communicable Diseases
- Plant & Soil Health
- Vector-borne Diseases / Climate Change
- Welfare / Well-being of animals, humans, planet
- Zoonotic Diseases

## Non-Communicable Diseases

### The Facts About Non-Communicable Diseases And One Health

Each veterinarian can play a more active role in the One Health movement.

June 25, 2012

By Alice Villalobos, DVM

Posted: June 25, 2012, 7:00 p.m. EDT

The human-animal bond connects veterinarians to milk and play a more active role in the One Health movement.

The One Health movement calls for greater cooperation sciences. It fosters collaboration at the local, national and living animals, plants and the environment. If or when present and future generations.

[Print full article](#)

Front Public Health. 2017 Oct 16;5:266. doi: 10.3389/fpubh.2017.00266. eCollection 2017.

### Engaging One Health for Non-Communicable Diseases in Africa: Perspective for Mycotoxins.

Ladeira C<sup>1,2,3</sup>, Frazzoli C<sup>4</sup>, Orisakwe OE<sup>5</sup>.

Author information

Abstract

## Aflatoxins

In Search of One Health Solutions



**Why is One Health Needed to Tackle The Caribbean's Non-Communicable Diseases (NCD) Epidemic**

Professor T. Alafia Samuels, MD, MPH, PhD

**One Health for Human Health Clinicians  
Dr. Cheryl Stroud, One Health Commission  
A Webber Training Teleclass**

## Non-Communicable Diseases + Human-Animal Bond



**SERVICE DOGS FOR AMERICA**  
Great Plains Assistance Dogs Foundation Inc.  
Like 2.1K



**Eric & Peety, a Mutual Rescue™ film**  
<https://www.youtube.com/watch?v=Rm0qYRWQpZI>



**Pets Promote Public Health!**

Celebrate National Pet Week! Did you know that pet ownership helps...

**MENTAL WELL-BEING**

- Companion animals improve mental and emotional well-being in humans.
- Pet owners are less likely to suffer from stress, anxiety, and depression than non-pet owners.
- Pet therapy improves a wide array of mental health disabilities, including anxiety, panic, post-traumatic stress, mood, obsessive compulsive, and other disorders.

**OBESITY PREVENTION**

- The National Institutes of Health found that dog owners who walk their dogs are significantly more likely to meet physical activity guidelines and are less likely to be obese than non-dog owners or walkers.
- By providing motivation and social support, pets make it easier for owners to adopt long-term behavior changes that lead to weight loss and other positive health outcomes.
- Pet ownership is associated with key indicators of cardiovascular health such as lower blood pressure, cholesterol, and triglycerides.

**TOBACCO CESSATION**

- 28.4% of smokers said knowing the adverse impact of cigarette smoke on pet health would motivate them to stop smoking. Second hand smoke exposure is associated with certain cancers in cats and dogs, allergies in dogs, and eye, skin, and respiratory diseases in birds.

National Pet Week is May 3-9, 2015

Celebrate the ways pets improve our lives and our health by promoting pet ownership, pet health, and the Surgeon General's National Prevention Strategy goals of active living, tobacco-free living, and mental and emotional well-being through the human-animal bond.

Brought to you by the USPHS Veterinary Category

[https://www.cdc.gov/pcd/issues/2015/15\\_0204.htm](https://www.cdc.gov/pcd/issues/2015/15_0204.htm)

## Teaching One Health with Stories

### Young Woman Travel Writer



Ecuador's Tungurahua volcano  
Photograph by Guillermo Granja, Reuters



Anonymous Image  
Veterinary Medicine, Mind over Miller, July 2011





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Anonymous Image

Two weeks after returning home:  
swollen painful joints  
fever  
skin lesions  
discolored fingernails  
shortness of breath

Radiographs => lung lesions

Granulomatous visceral lesions



Anonymous Image

Two years - 76 specialists – and 10 CT scans later

Tentative Diagnoses:

Hodgkin's Lymphoma

Non-Hodgkin's Lymphoma

Scabies, scleroderma

Gastrointestinal stromal tumors (GIST)

Scheduled for exploratory surgery for  
GIST, thought most likely to be sarcoma

Blood sample to Dr. Ed Breitschwerdt  
at the at the NCSU Vet School who  
found .....



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Anonymous Image

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**Bartonella vinsonii**



After surgery - the surgeon reported to father - found  
no evidence of malignancy.

Father said, "I never thought she had a malignancy;  
(I believe) she has Bartonellosis'.

Surgeon replied:

"I'm a surgeon...I don't know what bartonellosis is."

**!! We need better ways to exchange  
information across professions !!**

Veterinary Medicine, Mind over Miller, July 2011

<https://www.dvm360.com/view/mind-over-miller-are-we-too-specialized-part-1-human-medicine>





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**What IS Bartonellosis?  
Is It A hidden epidemic?**

Trench fever – World War II  
Cat Scratch Fever  
But it's Way more.....

A zoonotic Vector-Borne disease recently recognized to be prominent in humans as well as animals, causing a range of abnormalities including cardiac, neurologic and degenerative joint disease. Bartonella is a vector-borne spirochete bacteria carried by many arthropod insects including fleas, ticks and lice. It can become chronically, deeply embedded in all tissues. Some researchers consider this disease to be a hidden epidemic.



Ed Breitschwerdt, DVM

***Bartonella* spp. Bacteremia and Rheumatic Symptoms in Patients from Lyme Disease-endemic Region**

Ricardo G. Maggi, B. Robert Mozayani, Elizabeth L. Pultorak, Barbara C. Hegarty, Julie M. Bradley, Maria Correa, and Edward B. Breitschwerdt

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 18, No. 5, May 2012



Robert Mozayani, MD

296 Patients examined by a rheumatologist:

- 62% (185) had antibodies to *B. henselae*, *B. koehlerae* or *B. vinsonii*
- 41% had *Bartonella* species bacteremia

Conditions diagnosed before referral:

- Lyme disease (46.6%)
- Arthralgia/ Rheumatoid arthritis (20.6 %)
- Chronic fatigue (19.6%)
- Fibromyalgia (6.1%)
- Blurred vision / neurologic deficits
- Numbness in extremities

***Bartonella henselae* Bloodstream Infection in a Boy With Pediatric Acute-Onset Neuropsychiatric Syndrome**

Edward B Breitschwerdt<sup>1</sup>, Rosalie Greenberg<sup>2</sup>, Ricardo G Maggi<sup>1</sup>, B Robert Mozayani<sup>3</sup>, Allen Lewis<sup>4</sup> and Julie M Bradley<sup>1</sup>

Journal of Neuroparasitology  
Vol. 3 (2012), Article ID 235640, 15 pages  
doi:10.4303/jnp/235640

Review Article

**Neurological Manifestations of Bartonellosis in Immunocompetent Patients: A Composite of Reports from 2005–2012**

PLoS Negl Trop Dis. 2015 Jan 15;9(1):e0003467. doi: 10.1371/journal.pntd.0003467. eCollection 2015 Jan.

***Bartonella* spp. bacteremia in blood donors from Campinas, Brazil.**

VECTOR-BORNE AND ZOONOTIC DISEASES  
Volume 14, Number 8, 2014  
© Mary Ann Liebert, Inc.  
DOI: 10.1089/vbz.2013.1512

**Detection of *Bartonella* Species in the Blood of Veterinarians and Veterinary Technicians: A Newly Recognized Occupational Hazard?**

Journal of Central Nervous System Disease

Volume 11: 1-8  
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sagepub.com/journals-permissions  
DOI: 10.1177/1179675519851985



Clin Rheumatol  
DOI 10.1007/s10067-016-3524-2



BRIEF REPORT

**Culture, PCR, DNA sequencing, and second harmonic generation (SHG) visualization of *Bartonella henselae* from a surgically excised human femoral head**

M. Ericson<sup>1</sup> · N. Balakrishnan<sup>2</sup> · B.R. Mozayani<sup>3</sup> · C.W. Woods<sup>4,5</sup> · J. Dencklau<sup>1</sup> · S. Kelly<sup>6</sup> · E. B. Breitschwerdt<sup>2</sup>

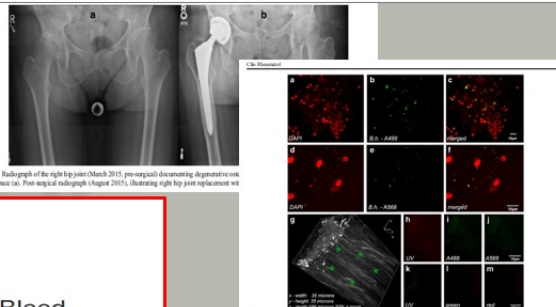



Fig. 2 Radiograph of the right hip joint (March 2015, pre-surgically documenting degenerative joint space loss). Post surgical radiograph (August 2015), illustrating right hip joint replacement with

Fig. 3 SHG images and multiplexed confocal microscopy images of *Bartonella henselae* in a surgically excised human femoral head. a) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. b) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. c) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. d) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. e) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. f) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. g) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. h) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. i) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. j) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. k) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. l) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. m) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. n) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. o) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. p) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. q) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. r) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. s) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. t) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. u) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. v) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. w) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. x) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. y) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head. z) SHG image showing collagen fibers (blue) and *B. henselae* (red) in the femoral head.

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### What IS Bartonellosis? A hidden epidemic?



DIAGNOSTIC TESTING LAB – DEPARTMENT OF CLINICAL SCIENCES

## Intracellular Pathogens Research Lab

Contact us: ☎ 919.513.8281 | ✉ [jmbradi3@ncsu.edu](mailto:jmbradi3@ncsu.edu) **NC STATE** Veterinary Medicine

Home | Overview | Sponsors | Research Team | Research | Publications | Resources

Bartonella Research Publications: Intracellular Pathogens Research Laboratory

Human *Bartonella* Research Publications Intracellular Pathogens Research Laboratory

### Human *Bartonella* Research Publications Intracellular Pathogens Research Laboratory

Center for Research North Carolina State University

1. Bre... wo... Inf...
2. Bre... spe... Inf...

on: Isolation of *Bartonella quintana* from a... J Clin Microbiol 45:270-272; 2007.

WVL, Hegarty BC, Woods CV. *Bartonella* animal and arthropod contact. Emerg

<https://tinyurl.com/s694w87>

**Value of One Health:  
Saving Lives**

### True One Health Stories



February 18, 2015

Neil Spector, MD, is a cancer researcher who wrote a book about his experience with undiagnosed Lyme disease.

Years of living with undiagnosed Lyme disease left Neil Spector's heart so badly damaged that he needed a heart transplant. Today, Spector, a Duke cancer researcher, is training for his second half-marathon. In his new book, he shares his story, and encourages people to take charge of their health.

Deceased June 14, 2020



**Heart:**  
The heart is a very common site for *Bartonella* inflammation in people. The following publication, by an internationally prominent infectious disease group, shows that selecting the proper laboratory tests is critical for an accurate diagnosis of bartonellosis.



Edouard, S, Nabet C, Lepidi H, Fournier P, Raoult, D. Bartonella, a common cause of endocarditis: a report of 106 cases and review. J Clin Microbiol 53: 824-829, 2015. This group reported 59 of their cases of Bartonella-induced endocarditis and a review of the literature between 2005-2013 for a total

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[www.webbertraining.com](http://www.webbertraining.com)



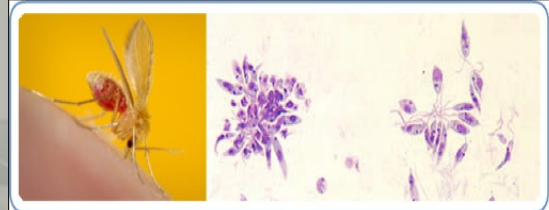
## *Many faces (arenas in need) of One Health*

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- Vector-borne Diseases / Climate Change
- Welfare / Well-being of animals, humans, planet
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### Vector-Borne Diseases



Anaplasmosis  
Babesiosis  
Bartonellosis  
Borreliosis (Lyme Disease)  
Leishmaniasis (cutaneous / visceral)  
Rocky Mountain Spotted Fever  
West Nile Virus  
Yellow Fever      Zika Virus  
Ect.....



<http://www.cbsnews.com/pictures/10-most-terrifying-parasites-ever/8/>

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**Animals as Sentinels, Vector-Borne Diseases  
(Climate Change, Forest Degradation)**



**Figure 1. Acute Lyme Infection.** A. *Ixodes pacificus* and *Ixodes scapularis* transmit Lyme-causing *Borrelia* and other tick-borne illnesses in the Western, and Mid-western and Eastern US, respectively. B. A classical erythema migrans (EM) rash. Many variations on this rash are possible. It can occur 1-4 weeks after a bite. Absence of a rash is not proof of absence of tick-borne disease. About 25% of cases with proven Lyme had no history of an EM rash.

Tick bite on a human

Tick bites on a dog

[http://www.momjunction.com/articles/lyme-disease-in-toddlers\\_00362985/#gref](http://www.momjunction.com/articles/lyme-disease-in-toddlers_00362985/#gref)  
<http://aetapet.com/lyme-disease-dogs/>

**Animals as Sentinels**

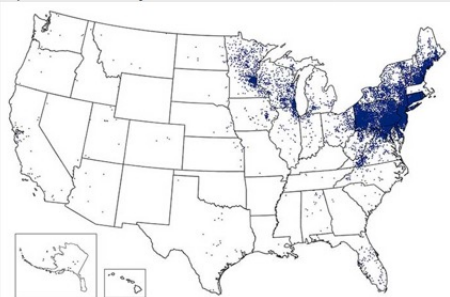
**Lyme Borreliosis – Humans - 2018**



**Lyme Disease Maps: Historical Data**

2018 2017 2016 2015 2014 2013 2012

Reported Cases of Lyme Disease – United States, 2018

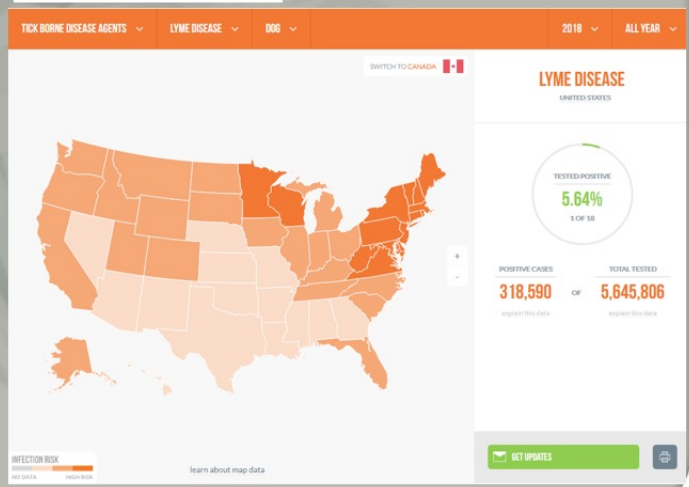


1 dot placed randomly within county of residence for each confirmed case

<https://www.cdc.gov/lyme/stats/maps.html>



**Lyme Borreliosis – Dogs - 2018**



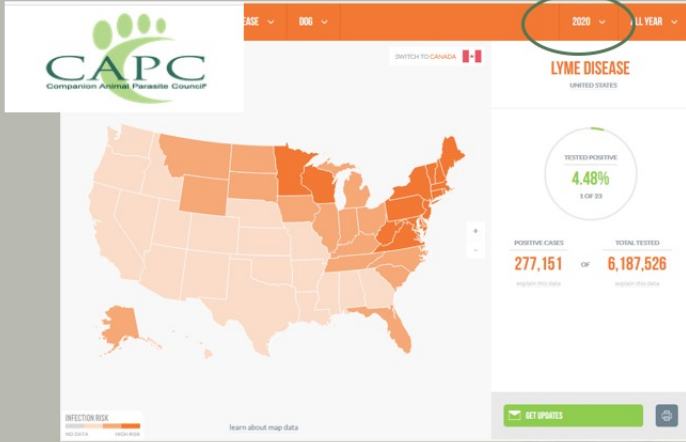
<https://capcvet.org/maps/#2020/all/lyme-disease/dog/united-states/>

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**Animals as Sentinels**



Are we paying attention???

Or will we let humans be the Sentinels??

Do we have 'systems' in place for sharing of data across the sectors??

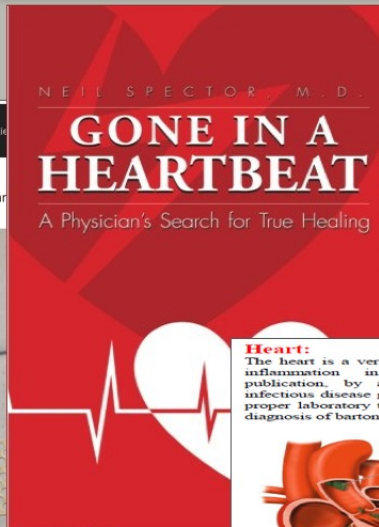
[Comp Immunol Microbiol Infect Dis](#), 2012 Mar;35(2):163-7. doi: 10.1016/j.cimid.2011.12.009. Epub 2012 Jan 16.

**Estimating Lyme disease risk using pet dogs as sentinels.**

[Smith FD<sup>1</sup>](#), [Ballantyne R](#), [Morgan ER](#), [Wall R](#).

**True One Health Stories**

The screenshot shows a DukeHealth article from February 18, 2015. It features a photograph of Neil Spector, MD, a man in a dark shirt leaning on a metal railing. Below the photo, a caption reads: "Neil Spector, MD, is a cancer researcher who wrote a book about his experience with undiagnosed Lyme disease." The main text of the article begins: "Years of living with undiagnosed Lyme disease left Neil Spector's heart so badly damaged that he needed a heart transplant. Today, Spector, a Duke cancer researcher, is training for his second half-marathon. In his new book, he shares his story, and encourages people to take charge of their health."



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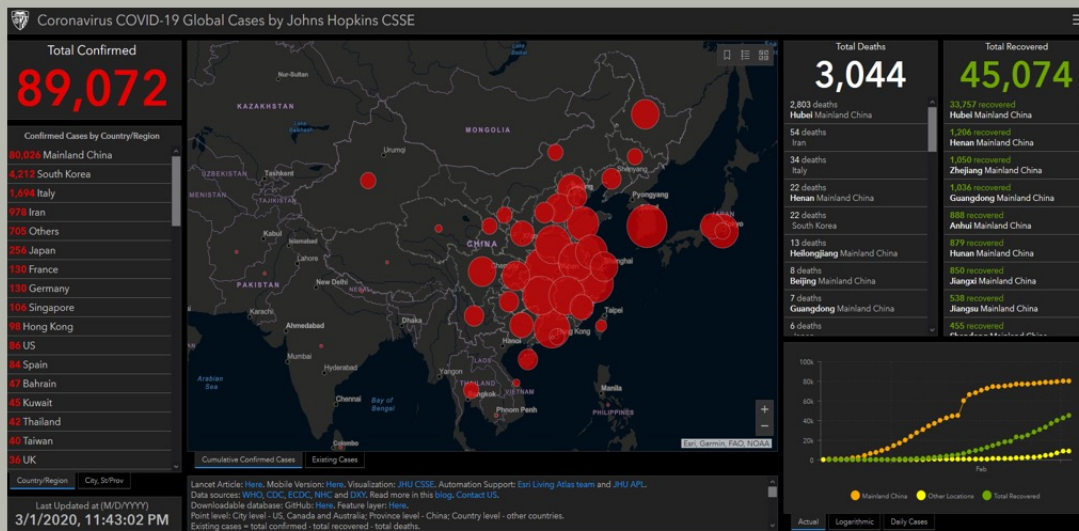
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  - Welfare / Well-being of animals, humans, planet
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### Coronavirus COVID-19 Global Cases by Johns Hopkins Center for Systems Science and Engineering (CSSE) March 1, 2020



<https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

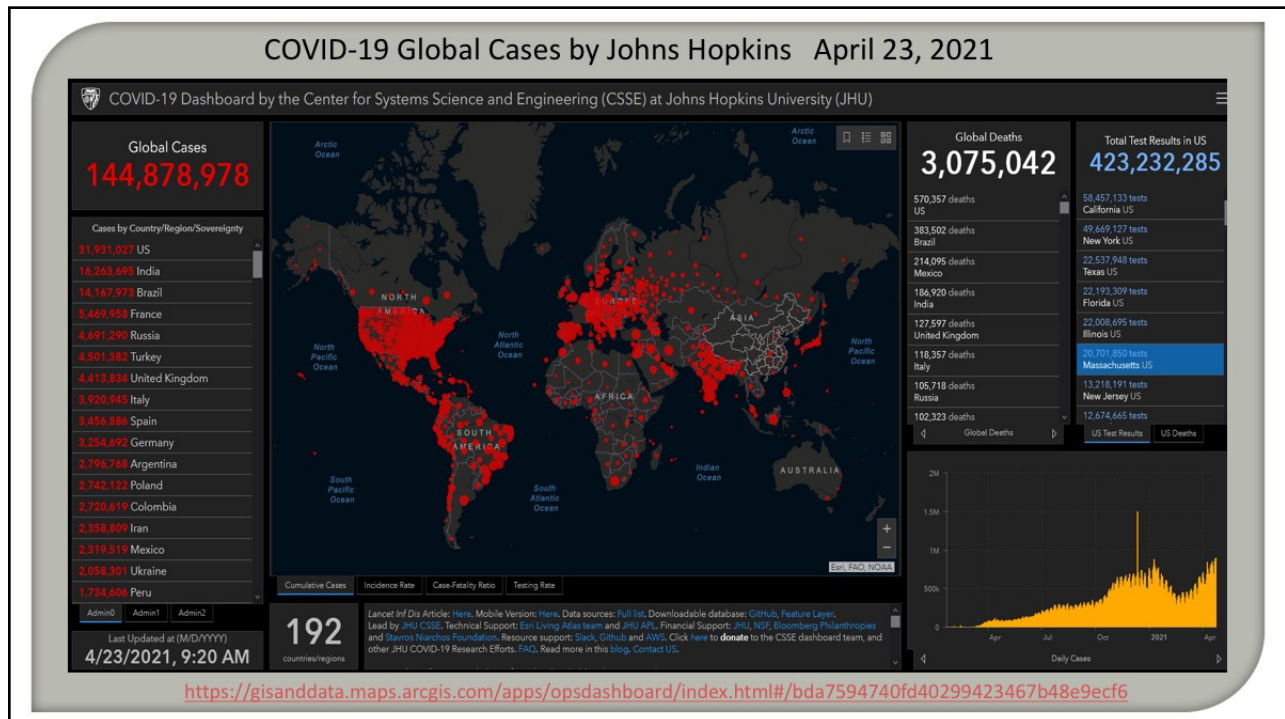
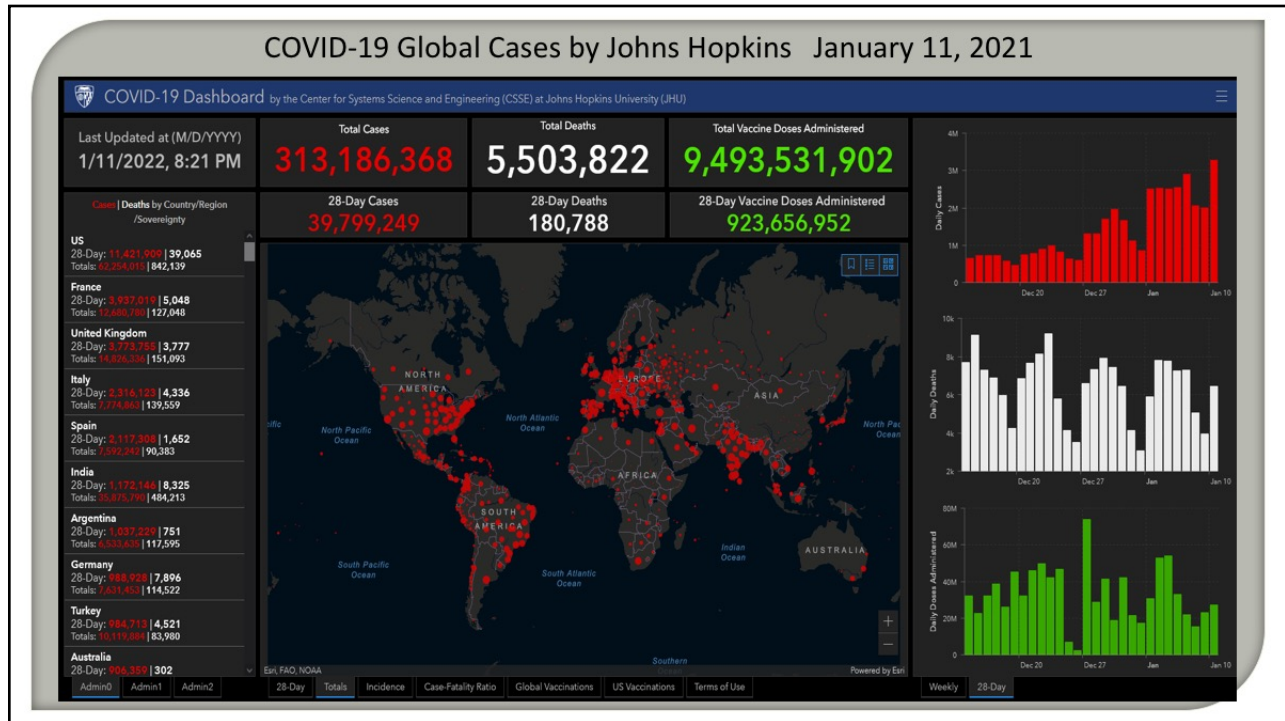
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**COVID-19 Pandemic**



Mass graves in New York, Spring 2020

Under our current Systems....  
This WILL happen again...

Maybe even worse next time!!!



**Don't blame the pangolin (or any other animal) for COVID-19**

A new analysis of 139 instances where an animal virus has spread to humans shows these outbreaks are a human problem with a human cause

By Dr Peta Lee Hitchens, the University of Melbourne, and Professor Christine K. Johnson, the University of California, Davis

<https://pursuit.unimelb.edu.au/articles/don-t-blame-the-pangolin-or-any-other-animal-for-covid-19?fbclid=IwAR2e9VuLIINIOSZcp53IUZHGGHqW61OJROz7k2h1Kbsrnm3tkKixz0sA>



Research in Veterinary Science  
Volume 131, August 2020, Pages 21-23

COVID-19 from veterinary medicine and one health perspectives: What animal coronaviruses have taught us

Nicola Decaro <sup>\*✉</sup>, Vito Martella <sup>\*✉</sup>, Linda J. Saif <sup>✉</sup>, Canio Buonavoglia <sup>\*✉</sup>

Show more

<https://doi.org/10.1016/j.rvsc.2020.04.009>

Get rights and content

<https://www.sciencedirect.com/science/article/pii/S0034528820304720?via%3Dihub>



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Popular media OpEds and Commentaries about the coronavirus outbreak / pandemic  
*that mention and/or call for One Health by name or theory.*

The screenshot shows the One Health Commission website. At the top, there is a navigation bar with 'About Us', 'Contact Us', and a search bar. Below this is a 'DONATE NOW' button. The main content area features a large image of a coronavirus particle with the text 'COVID-19 and ONE HEALTH'. To the right of this image is a list of articles under the heading 'What we are doing to:'. The articles include:
 

- 'CONNECT' - One Health Stakeholders to
- 'CREATE' - Strategic Initiatives/Partnerships that will
- 'EDUCATE' - About One Health
- 'COVID-19 and One Health' - Public Service Announcement
- 'Oh, A Day of Hope'
- 'What is One Health video'

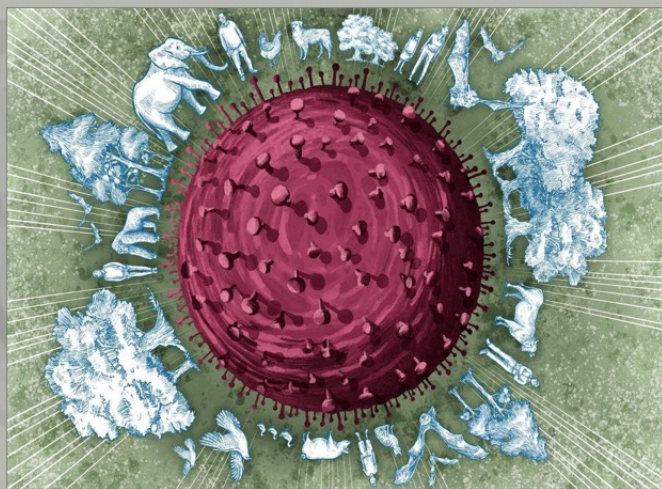
 Below the main content are four smaller sections: 'Support The Commission', 'Students for One Health', 'One Health in the News', and 'One Health Hot Topics'. At the bottom of the screenshot, there is a text box that says 'Over 200 articles and the list is still growing >>>>>' followed by the URL <https://www.onehealthcommission.org/>. To the right of the screenshot, there is a separate box titled 'COVID-19 and One Health' containing a list of articles from June 2020:
 

- Jun 17 'Act fast to avoid next pandemic, warns WWF' by IANS in Outlook India. A quote follows: "The COVID-19 crisis demonstrates that systemic changes be made to address the environmental drivers of pandemics. The WWF advocates a "One health" approach linking the health of people, animals and our shared environment and wants this to be included in decision-making on wildlife and land-use change. This should also be incorporated within all business and financing decisions, particularly related to global health."
- Jun 17 'Wildlife Supply Chains for Human Consumption Increase Coronavirus' Spillover Risk to People' by Wildlife Conservation Society in News Wise.

**Medical experts have a plan to prevent the next epidemic – it's called 'One Health'**

- Health groups have already learned lessons from previous outbreaks involving animals
- But our approach requires more collaboration between disciplines and across governments

Simone McCarthy  
Published: 12:59pm, 23 Apr, 2020



<https://tinyurl.com/y8vah4xn>

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**Nature is NOT the Enemy !**

We have seen the enemy.....and it us.

- Viruses just hitch a ride on the conditions that we humans create
  - Antimicrobial resistant bacteria are just evolving as they have for eons
- We humans are the culprits...

**S2. Ep. 5: The Wildlife Origins of SARS-COV2 and Employing a One Health Approach**



Apr 3, 2020

Interview with Dr. Steve Osofsky <https://tinyurl.com/y92p9npx>

**Times Evoke: Preventing the next pandemic — We can make this a 'never again' moment**

TNN | Updated: Apr 7, 2020, 09:35 IST

Ad

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Protect Your Health From Unwanted Germs. Washable and Reusable with Fast Free Shipping

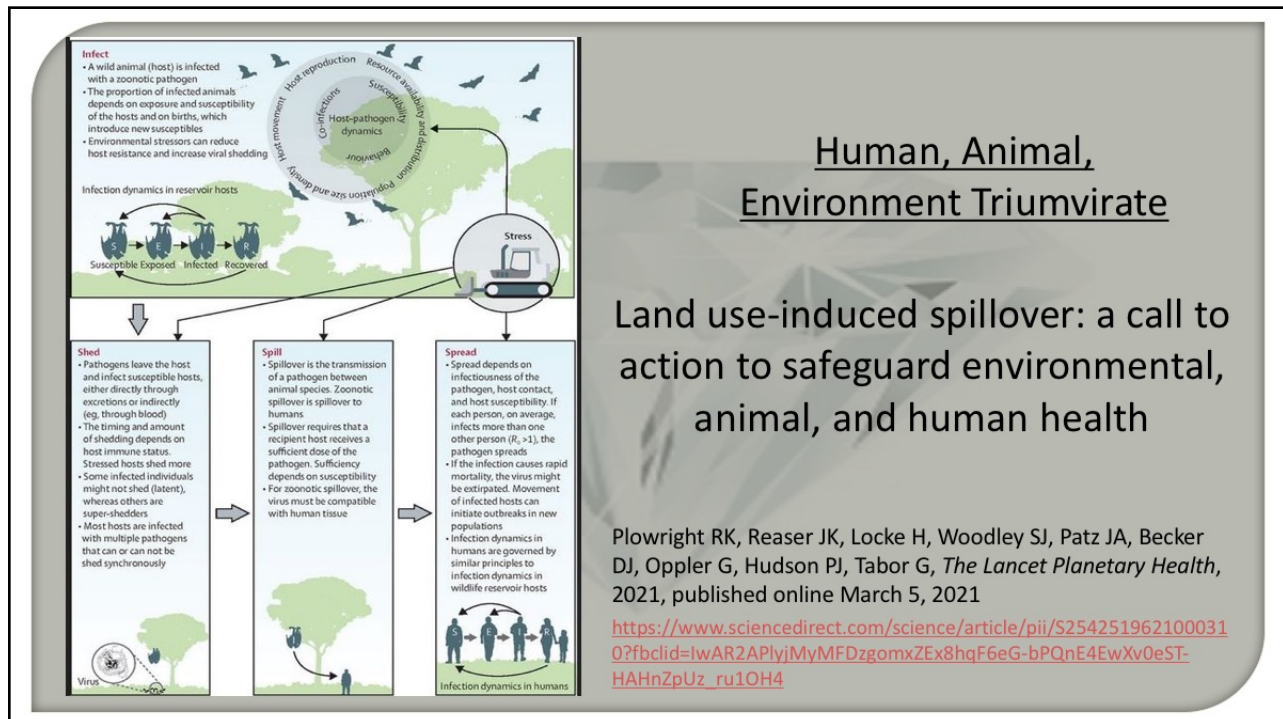


Steve Osofsky is Jay Hyman Professor of Wildlife Health and Health Policy at Cornell University's College of Veterinary Medicine

Steve Osofsky is a wildlife veterinarian and Jay Hyman Professor of Wildlife Health and Health Policy at Cornell University's College of Veterinary Medicine. He led the drafting of *The Manhattan Principles on One World, One Health* in 2004. He is also a Cornell Atkinson Center for Sustainability Faculty Fellow. Writing for *Times Evoke*, Osofsky discusses how to prevent the next pandemic:

The Times of India

<https://tinyurl.com/y92p9npx>






**One Health for Human Health Clinicians  
Dr. Cheryl Stroud, One Health Commission  
A Webber Training Teleclass**

**One Health Commission**  
Published by Cheryl M Stroud · November 4 at 3:48 PM ·

**Widespread Coronavirus Infection Found in Iowa Deer, New Study Says**  
Researchers and outside experts characterized the study's findings as a troubling development in the course of the pandemic. Widespread infection among North America's most ubiquitous game species could make eradicating the pathogen even more difficult, especially if they became a reservoir for mutations that eventually spilled back over to humans.

Call for strong, consistent wildlife bio-surveillance program in the US  
<https://www.nytimes.com/.../sci.../deer-covid-infection.html>




NYTIMES.COM  
**Widespread Coronavirus Infection Found in Iowa Deer, New Study Says**  
<https://tinyurl.com/mvcnawzh>

**Goats and Soda** STORIES OF LIFE IN A CHANGING WORLD NPR.org

INFECTIOUS DISEASE  
**How SARS-CoV-2 in American deer could alter the course of the global pandemic**  
November 10, 2021 · 5:29 PM ET  
MICHAELLEEN DOUGLEFF

3-Minute Listen



A new study suggests that white-tailed deer, like the one here, could carry the virus SARS-CoV-2 (indefinitely) and spread it back to humans periodically.  
Visit [www.npr.org](https://www.npr.org) for more stories.

<https://tinyurl.com/ce3dj8p4>

**Stark Reminders - why we urgently  
Need to implement One Health**



The Star, Kate Allen, Feb 2, 2020

**We are NOT Ready!!**

**April 3, 2015 Bill Gates: The next outbreak? We're not ready**  
[https://www.youtube.com/watch?v=6Af6b\\_wyiwI](https://www.youtube.com/watch?v=6Af6b_wyiwI)

**January 2017 Bill Gates: A deadly epidemic is a real possibility and we are not prepared**  
<https://goo.gl/uZxp86>

**April 27, 2018 Bill Gates: A coming disease could kill 30 million people within 6 months — and we should prepare for it as we do for war**  
<https://read.bi/2CSpV7x>

Hosted by Paul Webber paul@webbertraining.com  
www.webbertraining.com

# One Health for Human Health Clinicians

## Dr. Cheryl Stroud, One Health Commission

### A Webber Training Teleclass


RESEARCH ARTICLE

### Economics of One Health: Costs and benefits of integrated West Nile virus surveillance in Emilia-Romagna



Giulia Paternoster, Sara Babo Martins, Andrea Mattivi, Roberto Cagarelli, Paola Angelini, Romeo Bellini, Annalisa Santi, Giorgio Galletti, Simonetta Pupella, Giuseppe Marano, Francesco Copello, Jonathan Rushton, Katharina D. C. Stärk, Marco Tamba

Published: November 27, 2017 • <https://doi.org/10.1371/journal.pone.0188156>

*Trans R Soc Trop Med Hyg* 2017; **111**: 235-237  
doi:10.1093/trstmh/trx039




<http://bit.ly/2CHYQml>

**Prevent, Prepare and Respond:  
Economics of One Health to Confront Disease Threats**  
30 January – 2 February 2017

Workshop Report



**One Health Economics to confront disease threats**

Catherine Machalaba<sup>a</sup>, Kristine M. Smith<sup>a</sup>, Lina Awada<sup>b</sup>, Kevin Berry<sup>c</sup>, Franck Berthe<sup>d</sup>, Timothy A. Bouley<sup>d</sup>,

*One Health* 7 (2019) 100060

Contents lists available at ScienceDirect

**One Health**

journal homepage: [www.elsevier.com/locate/onehlt](http://www.elsevier.com/locate/onehlt)

ELSEVIER

Infectious disease and economics: The case for considering multi-sectoral impacts

Kristine M. Smith<sup>a</sup>, Catherine C. Machalaba<sup>a,b</sup>, Richard Seifman<sup>c</sup>, Yasha Feferholtz<sup>d</sup>, William B. Karesh<sup>a,b,e</sup>

## Economic Benefits of One Health

**Table 1. Economic costs of outbreaks are often more significant than public-health impacts**

Examples of outbreaks	Type of impact	Magnitude of impact (US\$ billion)	Number of cases	Cost/ case, US\$ 000
<b>Small public-health impact (because response contained outbreak)</b>				
SARS in 37 countries (2003)	Economic cost	40-54 <sup>a/</sup>	8,096	4,941
Ebola in West Africa (2013-16)	Economic cost	6.4 <sup>b/</sup>	28,652	223
Ebola in West Africa (2013-16)	Comprehensive cost	53 <sup>c/</sup>		1,850
MERS in Rep. of Korea (2015)	Economic cost	8.2 <sup>d/</sup>	186	44,300
<b>Large public-health and economic impact (because response much-delayed)</b>				
AIDS	Response cost only	563 <sup>e/</sup>	76 m	7,395
<b>Catastrophic public-health and economic impacts (pandemics)</b>				
Flu pandemic (or similar disease)	Economic cost (ongoing, annual expected value)	80 <sup>f/</sup>	~30% of population	~37
Flu pandemic (or similar disease)	Comprehensive cost (annual)	570 <sup>f/</sup>		~265

Notes and sources:  
<sup>a/</sup> Lee, J.W. & McKibbin, W. (2004). Estimating the Global Economic Costs of SARS. National Academies Press.  
<sup>b/</sup> World Bank (2016). "West Africa Ebola Crisis Impact Update: economic cost of \$2.6b." CDC (2017). Cost of the Ebola Epidemic. FactSheet: response cost of \$3.6 b.  
<sup>c/</sup> Huber, C., Fomulu, L. & Stevens, W. (2018). The Economic and Social Burden of the 2014 Ebola Outbreak in West Africa. *The Journal of Infectious Diseases*.  
<sup>d/</sup> Cho K. & Yoo J. (2015). Estimation of economic loss from the Korean outbreak of MERS-CoV. *Korean Economic Research Institute (KERI) Institute*, Seoul.  
<sup>e/</sup> Institute for Health Metrics and Evaluation (IHME). *Financing Global Health 2019: UNAIDS (2018). Pathways to Health, Justice and Equity: A Strategy for Ending the HIV Epidemic, with annual probabilities of 1.6% & 2.0%, respectively.* Fan, V., Jamison, D. & Summers, L. (2018). The Inclusive Cost of Pandemic Influenza Risk. *WHO Working Paper No. 20137*. Based on seven-case scenarios of the World Bank, with economic impact of 4.5% of GDP. A novel flu strain is considered most likely, but other pathogen causes are excluded. They will most likely originate in animals (like novel flu strains). Thus, "similar disease" refers e.g. to a coronavirus with similar transmissibility and severity as a severe flu. See also (13) and (17).

<https://tinyurl.com/wzwc7jm>



One Health for Human Health Clinicians  
Dr. Cheryl Stroud, One Health Commission  
A Webber Training Teleclass

Economic Benefits of One Health

\$\$\$\$\$\$

The coronavirus pandemic could cost the global economy a nightmarish \$82 trillion over 5 years, a Cambridge study warns

Business Insider

Shalini Nagarajan  
© May 20, 2020, 06:45 AM

SHARE

<https://markets.businessinsider.com/news/stocks/coronavirus-pandemic-cost-global-economy-82-trillion-cambridge-study-2020-5-1029218887>

SCIENCE HEALTH **FUTURITY** CULTURE ENVIRONMENT



**PANDEMIC FIGHT COSTS 500X MORE THAN PREVENTING ONE**

JULY 28TH, 2020  
POSTED BY JESSIE SCHMID-BOSCHON UNIVERSITIES

Researchers discovered that significantly reducing transmission of new diseases from tropical forests would cost, globally, between \$22.2 and \$30.7 billion each year.  
(Credit: Getty Images)

Prevention Saves  
both  
\$\$\$\$\$\$\$  
and Lives

<https://www.futurity.org/cost-of-pandemic-tropical-forests-conservation-2411232/>



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# One Health for Human Health Clinicians

## Dr. Cheryl Stroud, One Health Commission

### A Webber Training Teleclass

**2009**

**CDC** Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives, Protecting People™

### CDC's One Health Office – Key Focus Areas

*Achieving Optimal Health Outcomes for People and Animals*

- Zoonotic and Emerging Infectious Diseases
- Global Health Security
- Influenza and Pandemic Preparedness
- Advancing One Health in the United States and Globally
- One Health Issues and Emergencies at the Human-Animal-Environment Interface
- Preventing Zoonoses Shared Between People and Pets

### Highlights: One Health Activities in the United States

- Provide** technical assistance, expertise, and policy input on One Health projects, emergencies, and issues
- Coordinating** federal One Health Zoonotic Disease Prioritization activities in collaboration with DOI and USDA
- Address** IHR core capacities from US Joint External Evaluation and US National Action Plan for Health Security
- Lead** One Health Federal Interagency Network (OH-FIN)
- Partner** with US government partners, industry, professional organizations, and others on zoonoses prevention

<https://www.cdc.gov/onehealth/index.html>

### One Health

One Health recognizes that the health of people is connected to the health of animals and the environment. It is a collaborative, multisectoral, and transdisciplinary approach—working at the local, regional, national, and global levels—with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment. A One Health approach is important because 6 out of every 10 infectious diseases in humans are spread from animals.

Learn more about One Health.

### One Health Basics

### One Health in Action

### Domestic Activities

### Global Activities

### One Health Zoonotic Disease Prioritization

Most commonly prioritized zoonoses:

1. Rabies
2. Zoonotic Influenza viruses
3. Viral Hemorrhagic Fevers
4. Brucellosis
5. Anthrax

### Healthy Pets, Healthy People

[www.cdc.gov/healthypets](http://www.cdc.gov/healthypets)

### Upcoming ZOHU Calls

### ZOHU Call

Zoonoses & One Health Updates

### Overview:

<http://bit.ly/2L77ACo>

### One Health Federal Interagency Network (OH-FIN)

### one health DAY

ANNUAL

# one health DAY

## november 3

Promoting efforts around the world to bring together all human, animal, and environmental health disciplines.

created and hosted by

- One Health Commission
- One Health Commission
- ONE HEALTH PLATFORM

check [www.onehealthday.org](http://www.onehealthday.org) for more information

### 2016

### 2017

### 2018

### 2019

### 2020

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[www.webbertraining.com](http://www.webbertraining.com)



**One Health for Human Health Clinicians  
Dr. Cheryl Stroud, One Health Commission  
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**2021**

Group of Ten Members

**February 17, 2021**  
**WHO Director-General announces that leaders will discuss One Health at upcoming G7 and G10 meetings**

Tedros Adhanom Ghebreyesus underscored an emerging scientific consensus around a One Health holistic approach to pandemic prevention that involves more than just human health. “For many people, One Health may have once seemed simply a concept. It is no longer. ....We cannot protect human health without considering the impact of human activities that disrupt ecosystems, encroach on habitats, and further drive climate change,” he told a meeting of health officials this month.  
<https://tinyurl.com/44e8ywve>

**Seismic Shift by G7 in Recognizing One Health as Critical to Everyone’s Health**

UNA-NCA June 13, 2021

*By Richard Seifman, UNA-NCA Board of Directors, & Bruce Kaplan*

<https://tinyurl.com/4vb5yv7j>

The G7-nations (blue) and the European Union (teal)

<https://tinyurl.com/fs8dmm4w>

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**One Health for Human Health Clinicians**  
**Dr. Cheryl Stroud, One Health Commission**  
**A Webber Training Teleclass**

**France Diplomacy** | Press Room | English

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## First meeting of the One Health High-Level Expert Panel (17-18 May 2021)

### One Health Tripartite-Plus

Share | Print

The One Health High-Level Expert Panel (OHHLEP) met for the first time on 17 and 18 May. A press conference, organized by WHO on Thursday, 20 May at 09:00, in the presence of Jean-Yves Le Drian, French Minister for Europe and Foreign Affairs, presented this new body responsible for prevention of diseases of animal origin.

The One Health High-Level Expert Panel was proposed by France, with Germany's support, and was officially announced by the French and German Foreign Ministers and the leadership of the World Health Organization (WHO), the World Organization for Animal Health (OIE), the United Nations Food and Agriculture Organization (FAO) and the United Nations Environment Programme (UNEP) at the Paris Peace Forum on 12 November 2020.

[https://oiebulletin.com/?official=08-3-05-2021-1\\_ohhlepe](https://oiebulletin.com/?official=08-3-05-2021-1_ohhlepe) | <https://tinyurl.com/57uzc4nc>

**June 22, 2021**  
**PAHO One Health Policy released**  
**One Health: A comprehensive approach for addressing health at the human-animal-environment interface**

"The aim of this policy on One Health is to foster coordination and collaboration among the different governance frameworks of human, animal, plant, and environmental health programs in order to better prevent and prepare for current and future health challenges at the human-animal-environment interface. Of priority concern for One Health are risks that affect the systems on which society depends—health, agriculture/animal production, and environment. The policy includes six strategic lines of action that can provide valuable guidance for the actions of national health authorities and for the technical cooperation activities of the Pan American Sanitary Bureau (PASB or the Bureau)." <https://tinyurl.com/2d4fpr5z>

**168th SESSION OF THE EXECUTIVE COMMITTEE**  
*Virtual Session, 21-25 June 2021*

---

Provisional Agenda Item 4.6 | CE168/13, Rev. 1 | 22 June 2021 | Original: English

**ONE HEALTH: A COMPREHENSIVE APPROACH FOR ADDRESSING HEALTH THREATS AT THE HUMAN-ANIMAL-ENVIRONMENT INTERFACE**

**June 2021**  
**A Global Deal for Our Pandemic Age - G20 Panel Report - calls for One Health**  
 To 'Strengthen financing for the WHO and One Health and put it on more predictable footing.'

<https://www.g20.org/wp-content/uploads/2021/07/G20-HLIP-Report.pdf>



# One Health for Human Health Clinicians

## Dr. Cheryl Stroud, One Health Commission

### A Webber Training Teleclass



<https://www.onuitalia.com/g20-health-fao-who-oim-push-for-universal-one-health-approach/>

**September 5, 2021**

**G20 Health: Italy, with FAO, WHO, OIM, push for universal One Health Approach**

**One Health Tripartite developing a 'Call for Action on One Health**

The world has the opportunity to bolster collective and collaborative methods to prevent future pandemics through a universal, inclusive One Health approach, Italy's Minister for Health, Roberto Speranza, and QU Dongyu, Director-General of the Food and Agriculture Organization of the United Nations (FAO), said at the G20 Health Ministers Meeting held in Rome..... The Tripartite has supported the G20 to develop a Call for Action on One Health as part of its current development of a Global Action Plan for One Health with the guidance of its newly established One Health High-Level Expert Panel (OHHLEP)

**September 5-6, 2021**

**G20 Health Ministerial Meeting taking place**

**G20: Invest in animal health, or risk undermining global health**

With 75% of new diseases emerging from animals, the G20 must fund and implement a One Health approach to prevent future pandemics and ensure that any new funding mechanism for One Health initiatives complements and enhances animal health systems. The Action for Animal Health coalition launched a campaign urging G20 countries to support four transformative actions for stronger animal health systems.



<https://actionforanimalhealth.org/g20-invest-in-animal-health/>

### G20 Takes the Next Step in Making One Health a Priority

Groundbreaking Declaration of the G20 Ministers of Health in Preparation of the G20 Global Summit in October

by Richard Seifman - Board Member, United Nations Association-National Capital Area  
September 8, 2021 in Health, Politics & Foreign Affairs, Society



**September 8, 2021**

By Richard Seifman In: IMPAKTER

"Greater and more predictable funding is necessary for the WHO to perform its critical functions and ensure that there are no gaps in the surveillance-to-action loop, and to strengthen the integrated One Health approach.

<https://impakter.com/g20-step-one-health-priority/>

### The G20 and One Health: Will Future Actions Speak Louder?

G20 Health and Finance Ministers announced the establishment of a Joint Finance-Health Task Force in line with One Health principles

by Richard Seifman - Board Member, United Nations Association-National Capital Area  
November 1, 2021 in Health, Politics & Foreign Affairs



**November 1, 2021**

By Richard Seifman In: IMPAKTER

G20 Health and Finance Ministers announced the establishment of a Joint Finance-Health Task Force in line with One Health principles. To succeed with One Health will require those with the power, and those who are outside, to remain vigilant in keeping focus. The door is slightly ajar, let's open it wide. <https://tinyurl.com/3h7mhw99>

One Health for Human Health Clinicians  
Dr. Cheryl Stroud, One Health Commission  
A Webber Training Teleclass

6 One Health Sessions!!!



October 24-26, 2021

[One Health at the World Health Summit 2021](#)

Berlin, Germany. Founded in 2009 and held under the patronage of the German Chancellor, the President of the Republic of France, the President of the European Commission, and the Director-General of the World Health Organization (WHO), every October the [World Health Summit](#) draws international experts from academia, politics, the private sector, and civil society. During the three-day summit, stakeholders and decision-makers from 100 countries and every field in healthcare work together to find solutions to global health challenges and set the agenda for a healthier future. [About the World Health Summit](#). See the Summit [Agenda](#). This year [One Health was prominently featured](#) in 6 sessions. <https://tinyurl.com/3m9nxja7>

2017



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## Advancing a 'One Health' Approach to Promote Health at the Human-Animal-Environment Interface

[< Policy Statements and Advocacy](#)

[< Policy Statements](#)

[Policy Statements](#)

[Policy Statement Database](#)

[Policy Statement Development Process](#)

**Date:** Nov 07 2017 | **Policy Number:** 201712

**Key Words:** Environmental Health, Environment, Veterinary Public Health, Infectious Diseases

**Abstract**

A One Health approach (and related approaches such as veterinary public health, EcoHealth, and Planetary Health) recognizes the integral connections among humans, animals, and the environment in relation to people's health and well-being and promotes interdisciplinary approaches to address these connections. It promotes collaboration against public health threats, such as zoonotic diseases, antimicrobial resistance, and how food systems and disease spillover occur. It promotes the pursuit of separately less optimal but collectively better opportunities.

APHA  
Veterinary Public Health

Volume 1, Issue 1

February 14, 2018

ONE HEALTH NEWSLETTER

Hosted by Paul Webber [paul@webbertraining.com](mailto:paul@webbertraining.com)  
[www.webbertraining.com](http://www.webbertraining.com)



# One Health for Human Health Clinicians

## Dr. Cheryl Stroud, One Health Commission

### A Webber Training Teleclass

### One Health Collaborations in US State / Local Government & Policy Webinar

October 23 and 24, 2019

Hosted by the One Health Commission and the International Student One Health Alliance

Alaska  
Arizona  
Connecticut  
Kentucky  
Idaho  
LA Co, California  
Maryland  
Massachusetts  
Minnesota  
New Mexico  
North Carolina  
Pennsylvania  
Tennessee  
Harris Co, Texas

**November 2017  
One Health Month**

**One Health Day  
Nov 3, 2019**

ISOHA has created an instructional document on how to pursue legislative or executive branch advocacy for One Health initiatives. While focused on government advocacy in the United States, this document may also be helpful for those planning One Health advocacy in any country. <http://bit.ly/2B3aLeK>

**November 2019  
One Health Month**

**November 2019  
One Health Month**

**Jan 2021  
One Health Awareness Month**

Hosted by Paul Webber [paul@webbertraining.com](mailto:paul@webbertraining.com)  
[www.webbertraining.com](http://www.webbertraining.com)

# One Health for Human Health Clinicians

## Dr. Cheryl Stroud, One Health Commission

### A Webber Training Teleclass

## January is One Health Awareness Month

December 19, 2019 CONGRESSIONAL RECORD—SENATE S7215

SENATE RESOLUTION 463—DESIGNATING JANUARY 2020 AS “NATIONAL ONE HEALTH AWARENESS MONTH” TO PROMOTE AWARENESS OF ORGANIZATIONS FOCUSED ON PUBLIC HEALTH, ANIMAL HEALTH, AND ENVIRONMENTAL HEALTH COLLABORATION THROUGHOUT THE UNITED STATES AND TO RECOGNIZE THE CRITICAL CONTRIBUTIONS OF THESE ORGANIZATIONS TO THE FUTURE OF THE UNITED STATE

Mrs. FEINSTEIN (for herself, Mr. McSALLY, Ms. SMITH, Mr. BROWN, Mr. KING, Mr. CASEY, and Mr. PETERS) submitted the following resolution, which was considered and agreed to:

S. RES. 463

Whereas One Health is a collaborative, multidisciplinary, and transdisciplinary approach, working at the local, national, and global levels, with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environments;

By using the One Health approach, global health problems including antibiotic resistance, infectious disease spread, and zoonotic medical knowledge can be addressed.

Antibiotic resistance is of grave concern for both people and animals. Public health specialists are working with physicians and veterinarians to minimize inappropriate antibiotic usage in their patients.

AMENDMENTS SUBMITTED AND PROPOSED

SA 1288. Mr. WICKER proposed an amendment to the bill S. RES. 463, to require the Federal Communications Commission to issue rules relating to the collection of data with

problems with a One Health approach must be encouraged.

Thank you Mr. President. I yield the floor.

**ONE HEALTH AWARENESS MONTH**  
**JANUARY 2020**

**STEP 1: Connect**  
1. Connect with Media Outlets. Tell them about One Health Awareness Month.  
2. If you live in the US, share the S. Res. 463 Press Release and a personal story about One Health or a One Health issue that has affected you.

**STEP 2: Create**  
1. Using your favorite social media platform, consider following the suggested topics to create a viral post, video, meme, or story.  
2. Engage and provide feedback. Share and comment and sharing the post.

**STEP 3: Educate**  
1. Do a talk about One Health and One Health issues at a library, school, park, church, business, or meet with your neighbors. Share the right and important One Health issues.

116TH CONGRESS 2D SESSION **H. RES. 794**

Supporting the designation of January 2020 as “National One Health Awareness Month” to promote awareness of organizations focused on public health, animal health, and environmental health collaboration throughout the United States and to recognize the critical contributions of those

**SOCIAL MEDIA CHALLENGE TOPIC CALENDAR**

1 What is OH and Why is it Important?	2 OH Topic: What are Zoonotic Diseases?	3 OH Topic: What are Vector Borne Diseases?	4 OH Topic: Mosquito Borne Diseases	5 OH Topic: Tick Borne Diseases	6 OH Topic: Antibiotic Resistance
7 Climate Change and the Health of Animals, Humans, & Ecosystems	8 Climate Change and Food Security	9 Comparative Medicine: Evidence-Based Practices made using a One Health Approach	10 Organizations: Find the world working for One Health	11 OH Topic: Wildlife as Sentinels (Environmental Indicators)	12 One Health and Communicable Diseases
13 One Health Food Security	14 One Health and Food Safety	15 Humans: Tackling the Wildlife Loss of Biodiversity	16 One Health One Welfare One Planet	17 Benefits of the Human-Animal Bond	18 The Link Between Animal Abuse and Human Abuse
19 Clean Water: 8 Bill Healthy Soil, Plants, and People	20 Occupational Health Risks for Agricultural & Animal Workers	21 OH Topic: Plants in the Environment	22 One Health and Wildlife	23 Economic Benefits of One Health	24 One Health Successes
25 One Health 101 Education: Will our students be prepared for the future?	26 One Health Personal Stories	27 One Health 101 Education: Preparedness/Emergency Response	28 OH Topic: Land Use / Ecosystem Degradation	29 One Health: The One that Binds	30 One Health & the United Nations Sustainable Development Goals
31 Advocate for the Advancing Emergency Preparedness Through One Health act of 2019. Check out its progress!	Host a One Health Day 2020 event! One Health Day is Nov 2. Next events can be held any time of the year. Be sure to register your event to get on the map!				

[https://www.onehealthcommission.org/en/events\\_since\\_2001/one\\_health\\_awareness\\_month/](https://www.onehealthcommission.org/en/events_since_2001/one_health_awareness_month/)

117th CONGRESS 1ST SESSION **S. 861**

To establish an interagency One Health Program, and for other purposes.

IN THE SENATE OF THE UNITED STATES

MARCH 18, 2021

Ms. SMITH (for herself, Mr. YOUNG, Mr. GRASSLEY, and Mrs. FEINSTEIN) introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

**A BILL**

To establish an interagency One Health Program, and for other purposes.

**H.R.2061 - To establish an interagency One Health Program, and for other**  
117th Congress (2021-2022) | [Get alerts](#)

**BILL** [Hide Overview](#)

**Sponsor:** [Rep. Schrader, Kurt \(OR-5\)](#) (Introduced 03/18/2021)

**Committees:** House - Energy and Commerce; Agriculture; Natural Resources; Foreign Affairs

**Latest Action:** House - 03/18/2021 Referred to the Committee on Energy and Commerce, and in addition to the Committees on Agriculture, Natural Resources, and Foreign Affairs, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned. [\(All Actions\)](#)

**Tracker:**  
Introduced → Passed House → Passed Senate → To President → Became Law

March 18, 2021

Senator Tina Smith      Senator Todd Young

Representative Kurt Schrader      Representative Dusty Johnson

To establish in the US an  
Inter-Agency One Health Program

<https://tinyurl.com/yyn8b8vj>

Hosted by Paul Webber [paul@webbertraining.com](mailto:paul@webbertraining.com)  
[www.webbertraining.com](http://www.webbertraining.com)




# One Health for Human Health Clinicians

## Dr. Cheryl Stroud, One Health Commission

### A Webber Training Teleclass

September 30, 2019

**U.S. One Health Coalition forming in support of the One Health Act of 2019**  
Urgent Action Needed!



Dear Friend of One Health:

Recently, H.R. 3771/S. 1903 the *Advancing Emergency Preparedness Through One Health Act of 2019* was introduced in the U.S. House of Representatives and Senate. This legislation would require USDA and HHS, in coordination with other specified agencies and departments, to develop, publish, and submit to Congress a national One Health Framework for coordinated Federal activities under a One Health Program.

An Ad hoc group of supporters from the One Health Commission (OHC), the International Student One Health Alliance (ISOHA), the One Health Initiative pro bono team (OHI), the American Veterinary Medical Association (AVMA), and the National Association of Federal Veterinarians (NAFV) is working to mobilize the U.S. One Health Community in support of these bills.


We are reaching out to you to ask if your organization would like to be part of the U.S. One Health Coalition that will be working to educate Congress about One Health and to pass the Advancing Emergency Preparedness Through One Health Act. A broad coalition of diverse organizations will demonstrate strong support for the legislation and improve the prospect of passage in the 116<sup>th</sup> Congress.

Does your organization support these two bills?

If yes:

1. Would your organization like to be listed as a member of the U.S. One Health Coalition in future communications about these Bills to Congress? These communications would be shared with you prior to sending.
2. Please provide by reply email the following:
  - Organization Name as it should appear:
  - Organization Address:
  - Contact Name:
  - Contact Email:
  - Contact Phone Number:
  - Number of Members:

<https://conta.cc/2n2sSNR>



**State Veterinary Medical Associations**

- Alabama Veterinary Medical Association
- Alaska State Veterinary Medical Association
- Arizona Veterinary Medical Association
- Arkansas Veterinary Medical Association
- Delaware Veterinary Medical Association
- District of Columbia Veterinary Medical Association
- Florida Veterinary Medical Association
- Georgia Veterinary Medical Association
- Idaho Veterinary Medical Association
- Indiana Veterinary Medical Association
- Iowa Veterinary Medical Association
- Kansas Veterinary Medical Association
- Kentucky Veterinary Medical Association
- Maine Veterinary Medical Association
- Maryland Veterinary Medical Association
- Michigan Veterinary Medical Association
- Minnesota Veterinary Medical Association
- Missouri Veterinary Medical Association
- Montana Veterinary Medical Association
- Nebraska Veterinary Medical Association
- Nevada Veterinary Medical Association
- New Hampshire Veterinary Medical Association
- New Jersey Veterinary Medical Association
- New Mexico Veterinary Medical Association
- New York State Veterinary Medical Society
- North Carolina Veterinary Medical Association
- North Dakota Veterinary Medical Association
- Ohio Veterinary Medical Association
- Oklahoma Veterinary Medical Association
- South Carolina Association of Veterinarians
- Tennessee Veterinary Medical Association
- Texas Veterinary Medical Association
- Vermont Veterinary Medical Association
- Virginia Veterinary Medical Association
- Washington State Veterinary Medical Association
- Wyoming Veterinary Medical Association

**Non-Profit Organizations**

- AAEPAD (Animal & Human Health for the Environment and Development)
- American Academy of Pediatrics
- American Animal Hospital Association
- American Assoc Public Health Veterinarians
- American Association of Equine Practitioners
- American Association of Feline Practitioners
- American Association of Food Safety and Public Health Veterinarians
- American Association of Industry Veterinarians
- American Association of Small Ruminant Practitioners
- American Society of Laboratory Animal Practitioners

**American Society of Tropical Medicine and Hygiene**

- American Veterinary Epidemiology Society
- American Veterinary Medical Association
- Association of American Veterinary Medical Colleges
- Association of Avian Veterinarians
- EcoHealth Alliance
- Infectious Diseases Society of America
- International Student One Health Alliance
- Iowa One Health
- Louisiana One Health in Action
- MRI Global
- National Association of Federal Veterinarians
- National Environmental Health Association
- National Link Coalition (US)
- Ohio State Global One Health Initiative, LLC
- One Health Academy
- One Health Commission
- One Health Initiative pro bono team
- One Health Organization (Ohio)
- Ovarian Cancer Symptom Awareness
- Pet Partners
- Corporate
- Adtaem Global Education
- Requor, Inc.
- Academic Institutions
- College of Veterinary Medicine, Kansas State University
- CTSA One Health Alliance
- Cummings School of Veterinary Medicine at Tufts University
- Global Health Initiatives
- Lincoln Memorial University College of Veterinary Medicine
- National Institute of Antimicrobial Resistance Research and Education (NIAARRRE)
- One Health at the University of Georgia (Students and Faculty)
- One Health Institute, School of Veterinary Medicine, University of California, Davis
- Rice University School of Veterinary Medicine
- The Ohio State University Global One Health Initiative
- The Texas A&M University System
- University of Alaska, Fairbanks Center for One Health Research

Information: [One Health Commission](https://www.onehealthcommission.org/)  
<https://www.onehealthcommission.org/>

<https://tinyurl.com/OHC-OH-Coalition>



**Strategic Priorities**

- Connecting One Health Stakeholders – we can accomplish more *together!*
  - Educating about One Health and One Health Issues
  - Nurturing the Next Generation of One Health leaders

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August 3, 2020

## One Health Happenings

*The One Health Commission denounces racism and health inequities of all descriptions and urges the world to implement One Health at all levels of academia, research, government and policy as a path to achieving the United Nations Sustainability Goals, Global Health and Global Security.*

**COVID-19 and ONE HEALTH**

**COVID-19 and One Health News**  
See the COVID-19 and One Health webpage  
<https://tinyurl.com/yctbx7xhn>

Listserv has increased by > 5,000 individuals since the pandemic started – now > 15,000



**JOIN the GLOBAL OH COMMUNITY LISTSERV**

Sign-up to receive One Health Happenings News Notes and other updates from the One Health Commission delivered to your inbox.

Click here to join our global listserv of over 12,300 global One Health stakeholders and advocates.

**OHC Listserv Sign-up**

For Email Marketing you can trust.

[https://www.onehealthcommission.org/en/news/one\\_health\\_happenings\\_news\\_notes/](https://www.onehealthcommission.org/en/news/one_health_happenings_news_notes/)

[https://www.onehealthcommission.org/en/resources\\_services/join\\_the\\_global\\_oh\\_community\\_listserv/](https://www.onehealthcommission.org/en/resources_services/join_the_global_oh_community_listserv/)

### Bat Rabies Education






## OHC BRET- Bat Rabies Education Team

**Our Mission is to raise awareness about bat rabies in the Americas by promoting health education in a multi-strategic One Health approach.**

Rabies is a deadly, yet preventable, viral disease that can be transmitted to people by infected mammals, including bats. Bats are an integral part of our ecosystem, serving important roles like pollination, seed dispersal, and eating disease-causing mosquitoes and crop-damaging insects. However, people may be unaware of the health risk that bats can pose to people and pets through the potential transmission of rabies virus. Not all bats have rabies, but bats are responsible for most human cases of rabies in the Americas.



**NUNCA TOQUE UN MORCELAGO**  
LOS MORCELAGOS PUEDEN TENER RABIA

**NUNCA TOQUE EM MORCEGOS**  
MORCEGOS PODEM TER RAIVA



**NEVER TOUCH A BAT**  
BATS CAN HAVE RABIES

**You can't tell by looking!**

- Bats are the only mammals that can fly
- The wings get rid of their own heat
- They are not blind by night, they are blind with their eyes and use a detector
- They are not poisonous to eat, just your health!
- They are not a pest, they are a pest!
- If you see a bat in your house, call the Health Department
- If you see a bat, don't touch it!
- If you see a bat, don't touch it!
- If you see a bat, don't touch it!
- If you see a bat, don't touch it!

to provide this webpage of educational resources (see below for more information).

ing contact with bats.



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**ONE HEALTH COMMISSION**

WORLD HEALTH THROUGH COLLABORATION

One Health Commission is dedicated to the collaborative effort of multiple disciplines and institutions to attain optimal human, animal, and ecosystem health.

<http://bit.ly/2GxZnqQ>  
[ohss@onehealthcommission.org](mailto:ohss@onehealthcommission.org)

## One Health-Social Sciences Initiative

### Engaging Social Scientists in the One Health Concept



Laura Streichert, MPH, PhD  
Helena Chapman, MD, PhD  
Bernardo Moreno, MD  
Veronica Ormea, DVM, MSc  
Severine Thys, PhD

**One Health-Social Sciences Initiative Webinar Series**



Addressing Gender Issues in One Health and Infectious Disease Preparedness  
January 15, 2019

Brigitte Bagnol, PhD  
and  
Hellen Amuguni, DVM, MA, PhD  
Coeditor and One Health: Whose are we?

Recording available at:  
<https://attendee.gotomobinar.com/register/6153799406338739841>

### How can 'you' incorporate One Health thinking and acting into your everyday work?

- Include questions about animal interactions on all patient intake questionnaires.
  - ★ ○ Do you have pets? If so what species?
  - Are your pets current on vaccinations?
  - Do you sleep with your pet(s)?
  - Do you work with animals in your occupation? If so what species?
  - Are any animals in your life ill?
- Be cognizant of parasitic and zoonotic infectious diseases that might be missed if you are not watching for them.
  - Example, larval migrans, ring worm, sarcoptes, cryptosporidia, salmonella and many more.



Learn about an outbreak of Salmonella Typhimurium infections linked to pet hedgehogs.

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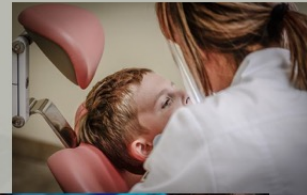
- Teach colleagues, children, patients about rabies, especially in bats. Never touch a bat!
- Use the human-animal bond to help patients understand that their pet's health is dependent on their own health.

Examples:

- Tell them that their cigarette smoking is bad for their cat/dog/bird. Taking care of a beloved pet will sometimes inspire them to take action for the pet that they would not take for themselves or their human family.
  - Often both patient and pet are obese. Discuss the health concerns of obesity in the pet to motivate the human. Warn of diabetes and/or arthritis developing and how challenging and expensive it can be to deal with a diabetic and/or arthritic pet.
- Eat less meat, Urge others to eat less meat to help protect their health and the planet.



- Seek current expanded information about zoonotic and vector-borne diseases. It may not show up in the journals you usually read. Sign on / follow open access One Health and other professional journals.
- Seek relationships with local veterinarians, public health workers, environmental health workers, animal control officers.
- Consider going to veterinary and environmental health conferences to enhance your own understanding.
- To prevent the next coronavirus, urge:
  - biosurveillance of wild animals in both cities and rural settings
  - beware of 'wet' markets. This is where many live species are brought together for slaughter in close spaces with people.





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- Place One Health educational brochures in your waiting rooms and nursing stations and Dr. offices.

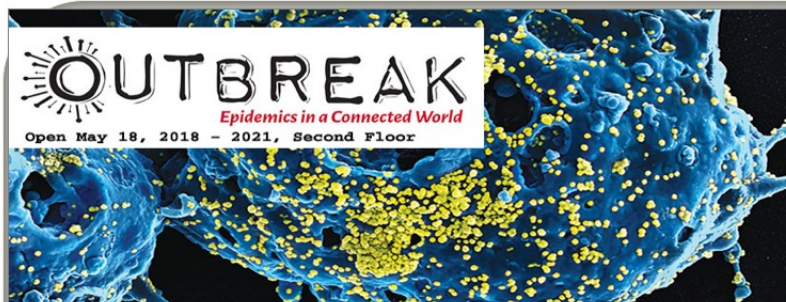
Examples:

- Bat Rabies Education – protect bats but don't touch them
  - Vector-borne diseases brochures, including Bartonella
  - Backyard chickens healthy habits
- Help educate about why it is urgent to implement One Health at national, state and local government levels. Call your lawmakers to share your knowledge and understanding.

Explain the need for bio-surveillance of companion animals and wildlife in cities and in rural areas. Point out that there is no federal agency in charge of this. There is no CDC for animals and USDA pays attention only to agriculture animals.

- Don't use plastic straws in restaurants and explain to the management why they are only appropriate for special needs customers (or hospital patients)

***Become a One Health Champion!***



2018

Smithsonian



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- *What is One Health all about?*
- *The full scope of One Health (arenas in need)*
- *Examples of cross-professional collaborations*
- *Why are they important?*



## ***Collaborations***

start with

## ***Relationships!!***

*Which start when we  
come together in direct conversations*



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**One Health is a powerful Solution for today's challenges**

The 'tipping' point will be reached when human health, animal health and environmental health practitioners are truly 'connected'



C o m i n g S o o n	January 27, 2022	<a href="#">CLINICAL SYNDROMES AND CONDITIONS WARRANTING EMPIRIC TRANSMISSION BASED PRECAUTIONS</a>	<a href="#">View</a>
	Speaker: <b>Dr. Jennifer Cole</b> , Avanti Hospitals, California		
	February 3, 2022	<a href="#">VACCINE HESITANCY ... WHAT'S HAPPENING?</a>	<a href="#">View</a>
	Speaker: <b>Prof. Rodney Rohde</b> , Texas State University		
	February 8, 2022	<i>(FREE European Teleclass)</i> <a href="#">THREE EARLY PIONEERS – WHO CAN STILL TEACH US A THING OR TWO</a>	<a href="#">View</a>
	Speaker: <b>Dr. Evonne Curran</b> , Glasgow Caledonian University, Scotland		
	February 10, 2022	<a href="#">RETHINKING SOLUTIONS FOR PUBLIC HEALTH PROBLEMS: A HOLISTIC ONE HEALTH SOCIAL SCIENCE (OHSS) SYSTEMS APPROACH</a>	<a href="#">View</a>
	Speaker: <b>Dr. Laura C. Streichert</b> , One Health Commission		
February 17, 2022	<a href="#">ASSESSING THE CLINICAL ACCURACY OF A HAND HYGIENE SYSTEM</a>	<a href="#">View</a>	
Speaker: <b>Dr. Marco Bo Hansen</b> , Copenhagen University Hospital, Denmark			
February 24, 2022	<a href="#">HEALTHCARE INFORMATICS LESSONS FROM THE PANDEMIC</a>	<a href="#">View</a>	
Speaker: <b>Prof. Keith Woeltje</b> , Medical College of Wisconsin			
March 3, 2022	<i>(FREE Teleclass ... Denver Russell Memorial Teleclass Lecture)</i> <a href="#">BENEFITS AND POTENTIAL UNINTENDED CONSEQUENCES OF ROUTINE CHLORHEXIDINE BATHING IN HEALTHCARE FACILITIES</a>	<a href="#">View</a>	
Speaker: <b>Prof. Mary Hayden</b> , Rush University Medical Center, Chicago			

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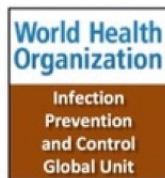
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