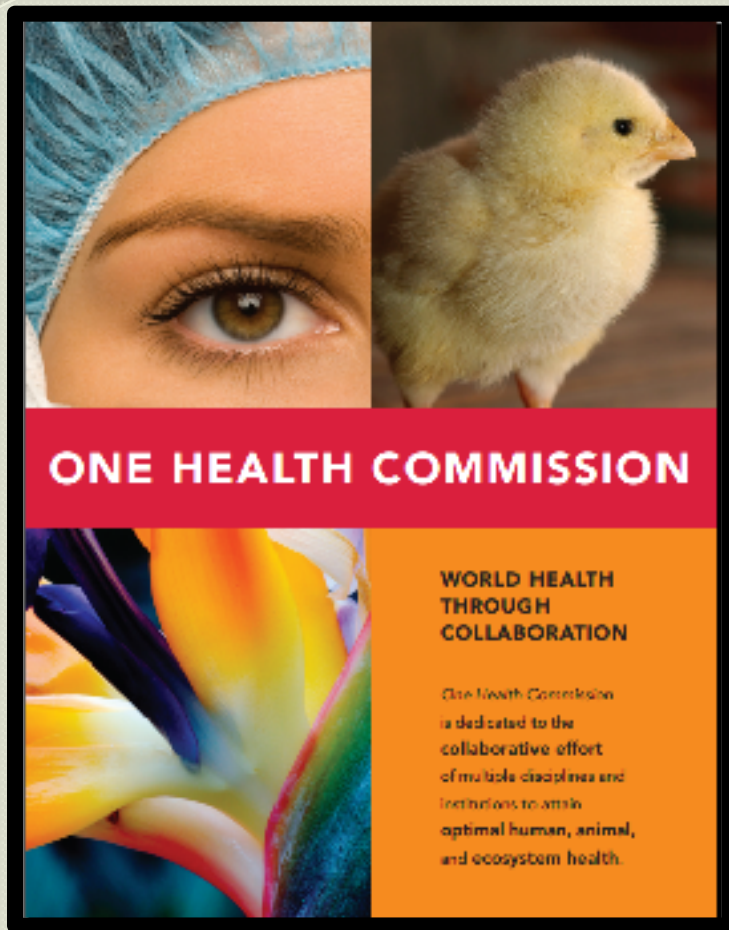



Advancing the One Health Concept Through Collaborations that ‘Connect, Create and Educate’



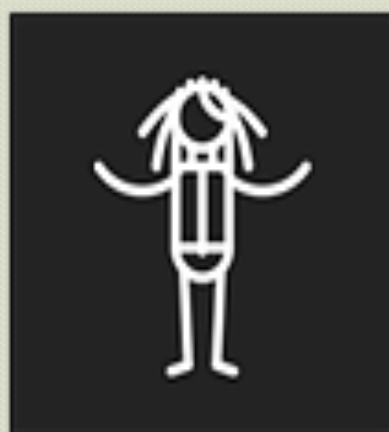


One Health

Linking Human, Animal, and
Ecosystem Health

<https://www.youtube.com/watch?v=2pyLm2j3jxI&feature=youtu.be>

KUDOS!!!!!!



ONE HEALTH:
ONE GLOBAL ENVIRONMENT

ONE HEALTH
CONFERENCE



- *What is One Health?*
- *Brief* **Historic Overview**
- **Updates on One Health around the world**
- **One Health Commission Activities**
- **Why the Environment Matters in OH**



Collaborations

start with

Relationships!!

*Which start when we
come together in direct conversations*



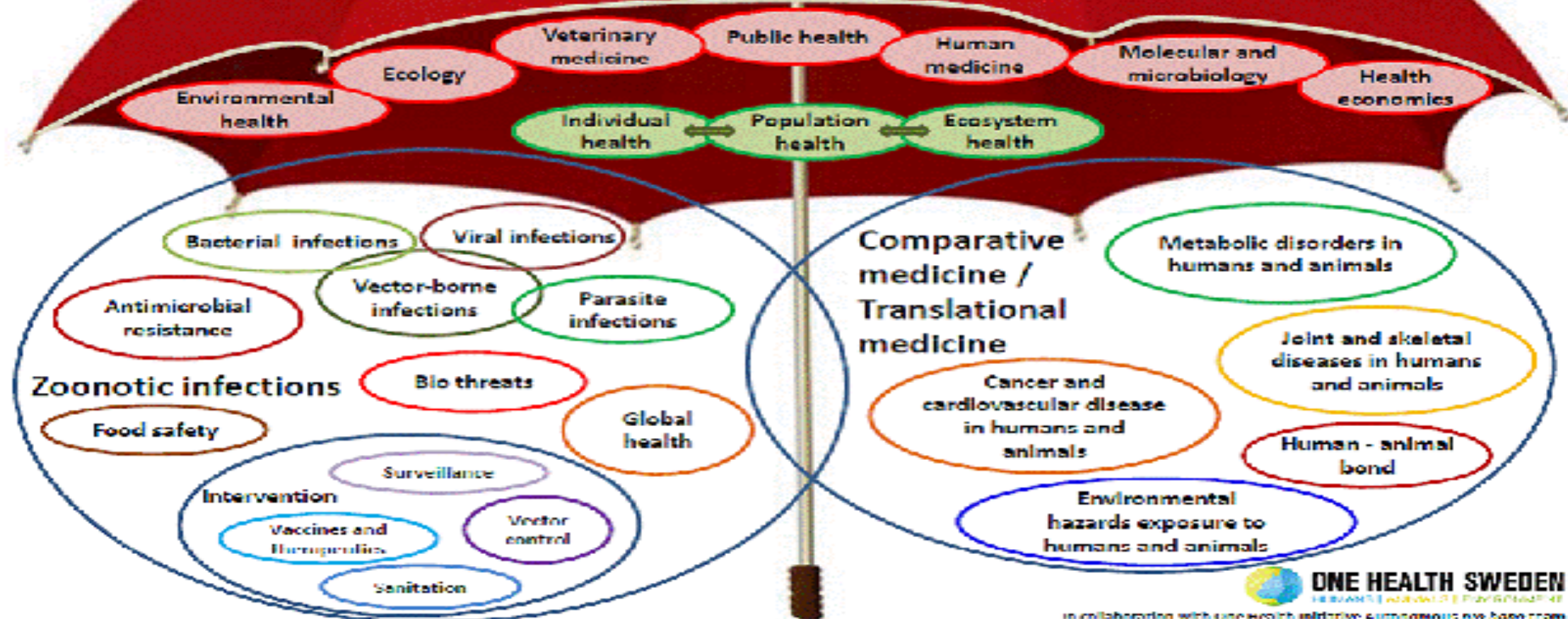
What is ONE HEALTH all about?



*Not a new concepthowever.....
A New Professional
Imperative!!*



One Health



ONE HEALTH SWEDEN

HEALTH | WELFARE | PLANET | PEOPLE

in collaboration with one health initiative [www.onehealth.se](#) and [www.onehealth.se](#)



One Health
is a pathway to
Planetary Health
and Global *Security*





Ray of Hope for the Future

Ego

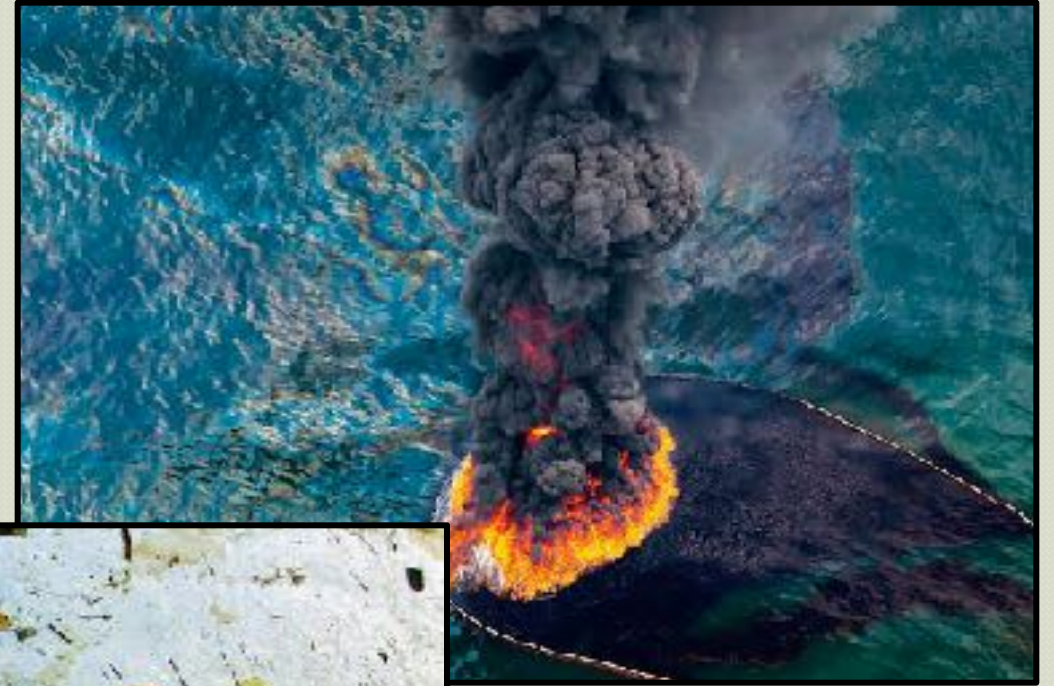


Nature



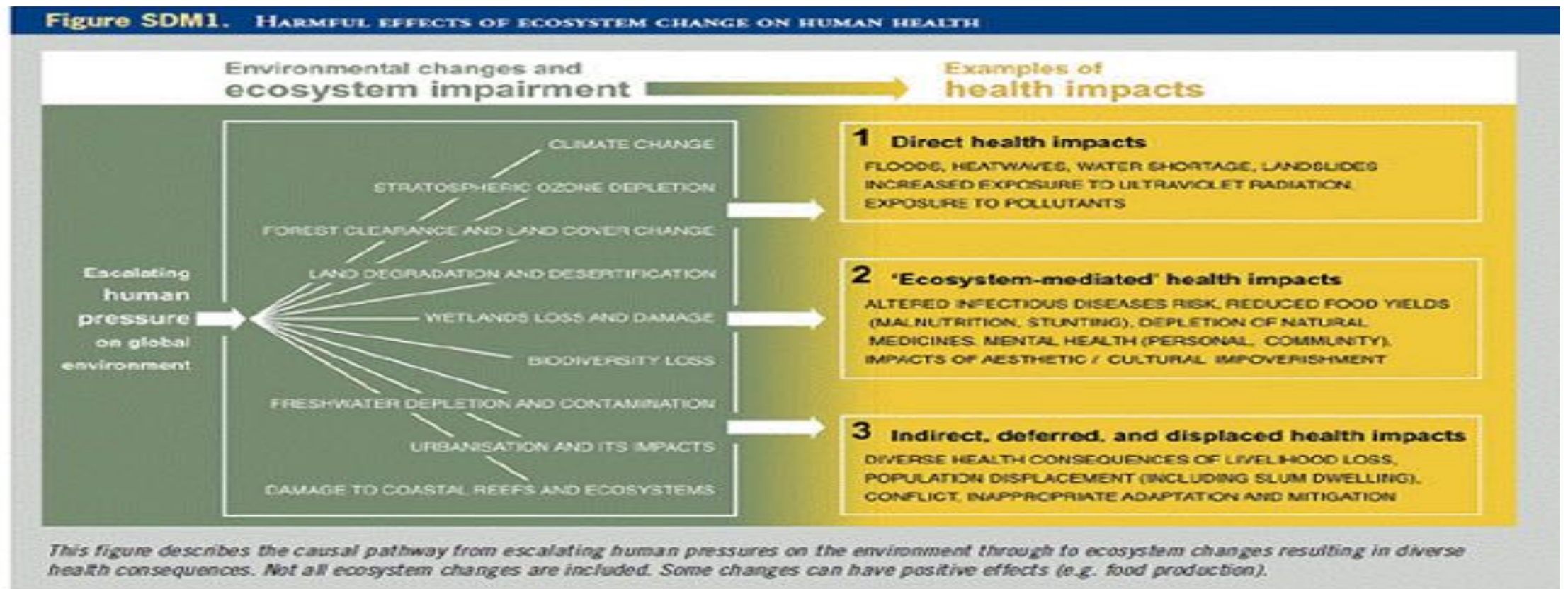
"A lot of people have this ego need that makes them want to believe that Earth is the centre of the universe and humans are the most important species, the supreme expression of creation." - Ann Druyan

<https://www.brainyquote.com/quotes/quotes/a/anndruyan362153.html>



<http://magazine.good.is/slideshows/human-impact-environment#0>

Why the environment and environmental change matter to One Health, Meredith A. Barrett , Aaron H. Stoertz, Timothy A. Bouley, One Health Initiative Website NEWS, September 23, 2010



Food and Water Safety and Security



Current World Population ~ 7.23 billion

It is now estimated that it will reach 9 billion by 2042.

<http://www.worldometers.info/world-population/#pastfuture>

Food and Water Safety and Security:



Human-Animal Bond



ANTIDEPRESSANT



No Words Needed ...



Human-Animal Bond

?



Pets Promote Public Health!

Celebrate National Pet Week! Did you know that pet ownership has great benefits for your health?

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.

54% of US households own pets

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

28.1% 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 ASPCA Veterinary Category

Human-Animal Bond



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

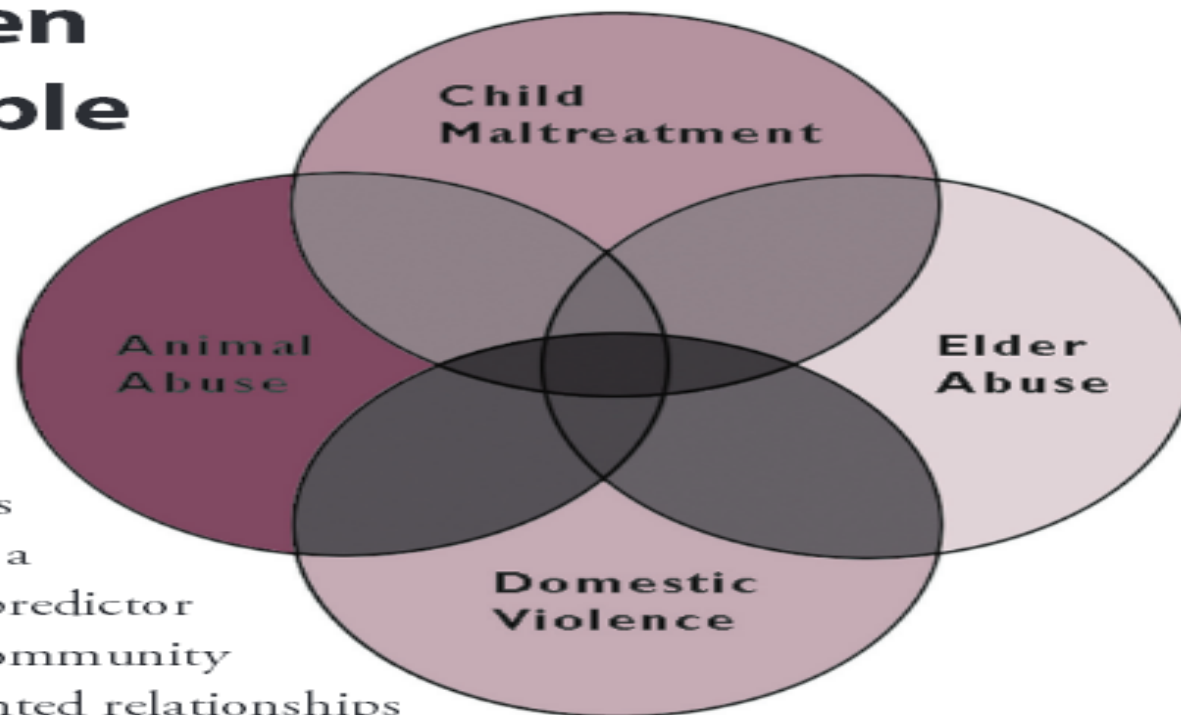


NATIONAL LINK COALITION

*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



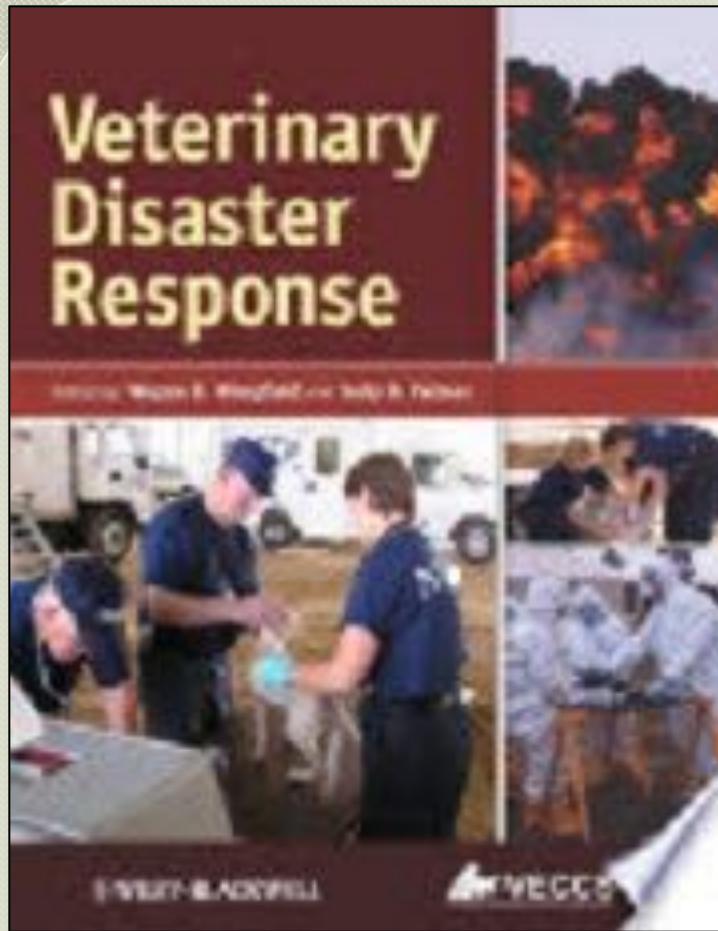
<http://nationallinkcoalition.org/>

Human-Animal Bond

Lessons from Katrina, a game changer in disaster response –

Don't Show Up without pet carriers!!!!





W.E. Wingfield,
S.B. Palmer - 2009



Is Animal Relief Humanitarian Relief???

Chapter 3.4

NOAH'S BURDEN: A PROLEGOMENON TO THE ETHICS OF VETERINARY DISASTER RESPONSE

Bernard E. Rollin, PhD

*is animal relief humanitarian
relief?*

1. The most fundamental question pertaining to veterinarian involvement in disaster relief is a jarring, politically incorrect one—why spend (waste?) resources on animals when the same money could be spent to benefit humans?

Nature Deficit Disorder: Ecotherapy for Depression?



<https://www.nwf.org/News-and-Magazines/National-Wildlife/Gardening/Archives/2015/Schoolyard-Habitats.aspx>

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

- ◉ The test checked for lead and other metals including copper, mercury, zinc, iron and mercury.
- ◉ Dogs became Sentinels for what the people were being exposed to.

http://www.mlive.com/news/flint/index.ssf/2016/04/free_lead_testing_event_for_do.html

Animals as Sentinels

Endocrine Disruptors in our Environment:
flame retardants

Hyperthyroid cats

Elevated PBDE Levels in Pet Cats: Sentinels for Humans?

JANICE A. DYE,^{*,†} MARTA VENIER,[‡]
LINGYAN ZHU,^{1,||} CYNTHIA R. WARD,[§]
RONALD A. HITES,¹ AND
LINDA S. BIRNBAUM[†]

U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Experimental Toxicology Division, Research Triangle Park, North Carolina 27711, School of Public and Environmental Affairs, Indiana University, Bloomington, Indiana 47405, and College of Veterinary Medicine, University of Georgia, Athens, Georgia 30602

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



Animals as Sentinels

Endocrine Disruptors in our Environment: flame retardents

Contribution to Childhood obesity? – postulated

Research | Children's Health

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

Heather M. Stapleton,¹ Sarah Eagle,¹ Andreas Sjödin,² and Thomas F. Webster³

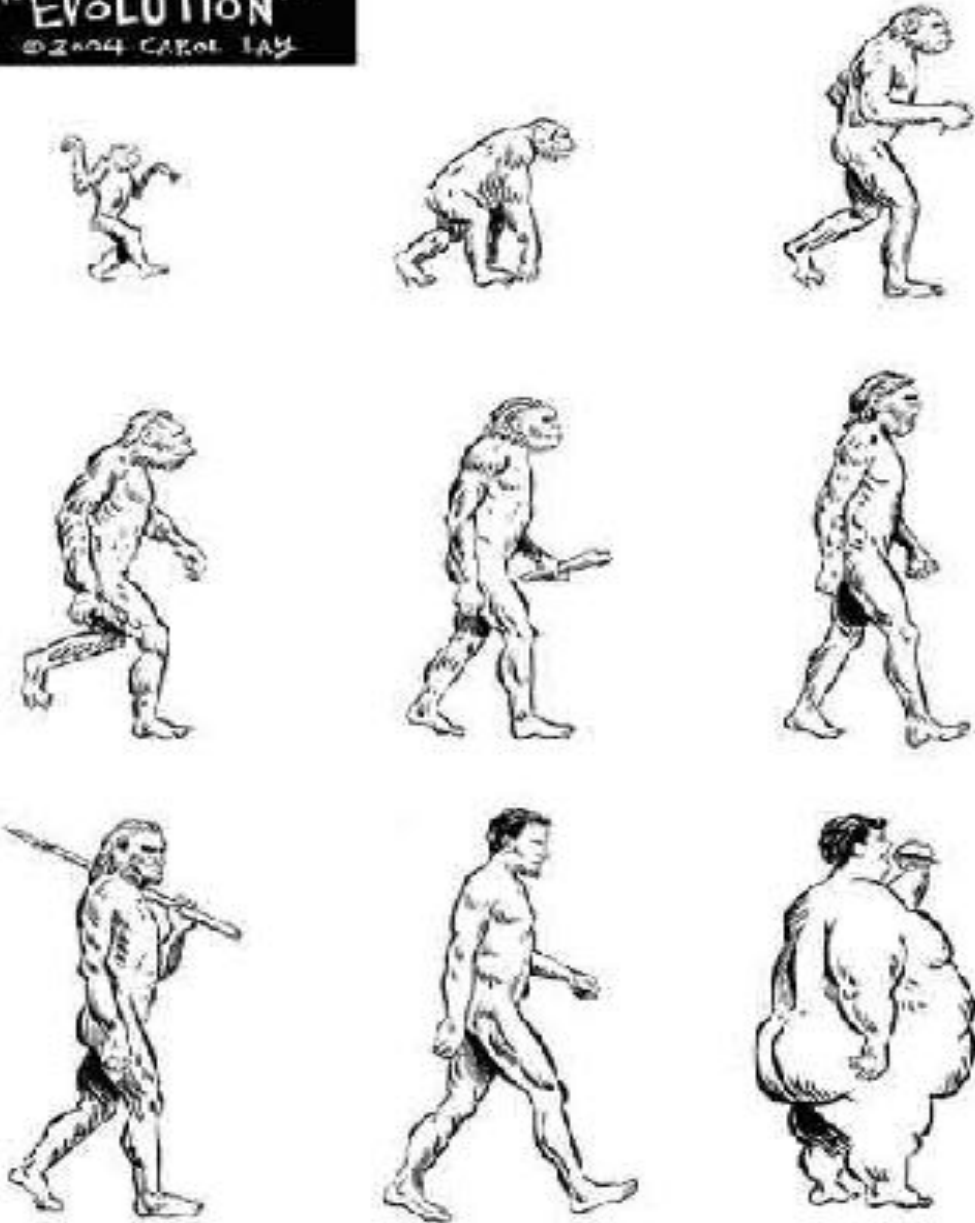
¹Nicholas School of the Environment, Duke University, Durham, North Carolina, USA; ²Centers for Disease Control and Prevention, National Center for Environmental Health, Division for Laboratory Sciences, Atlanta, Georgia, USA; ³Department of Environmental Health, Boston University School of Public Health, Boston, Massachusetts, USA

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



"EVOLUTION"

© 2004 CAROL TAY



Man in America

Obesity: a major cause of death today

Could there be links in our environment??????



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The Interplay Between Environmental Chemical Exposures and Obesity: Proceedings of a Workshop

Released: July 29, 2016

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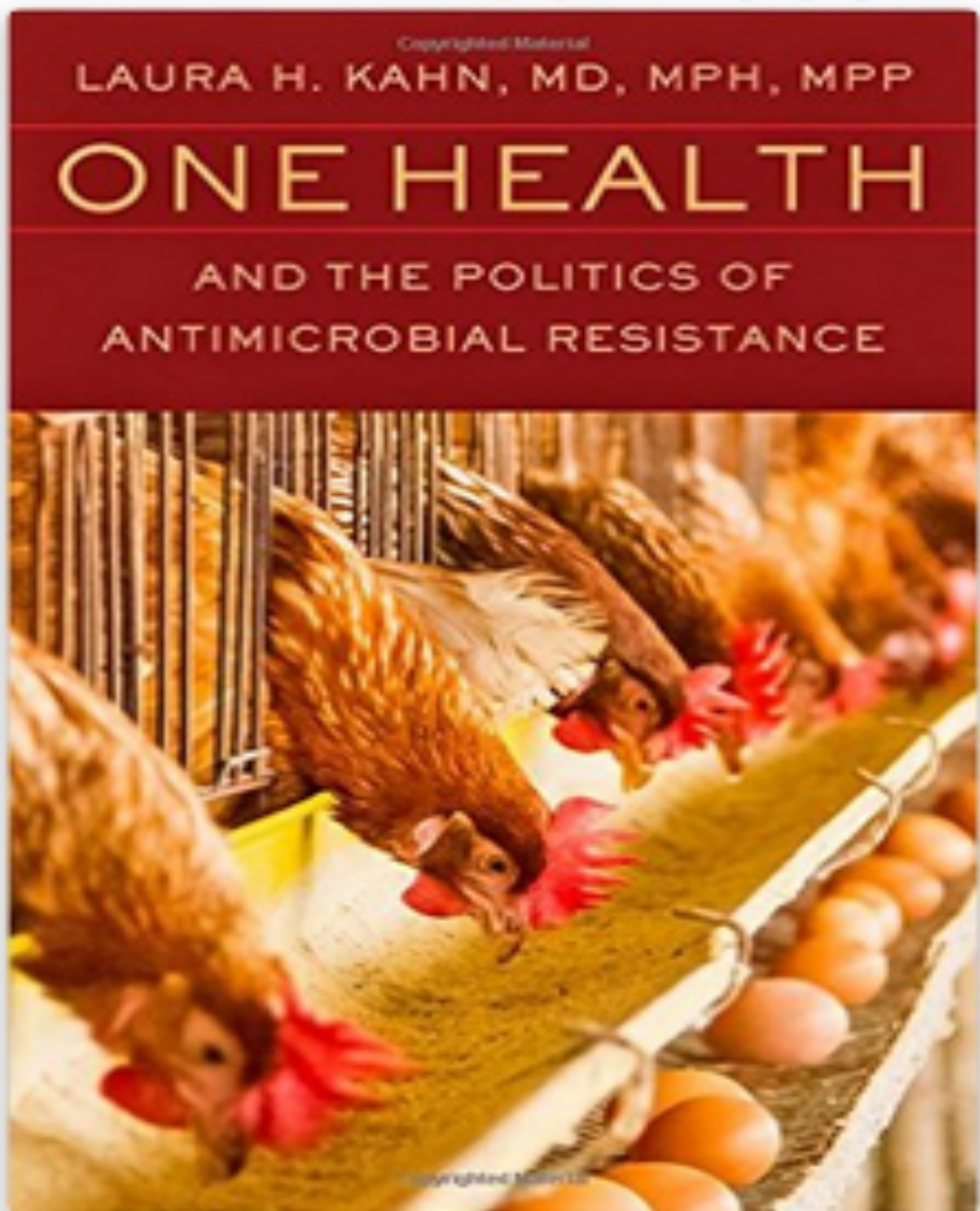
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http://nationalacademies.org/hmd/reports/2016/interplay-between-environmental-exposures-obesity-proceedings.aspx?utm_source=HMD+Email+List&utm_campaign=56ab149b92-HMD_News_8_1_2016&utm_medium=email&utm_term=0_211686812e-56ab149b92-180292125



Laura Kahn, MD, MPH, MPP

Antibiotic resistance is the quintessential One Health issue

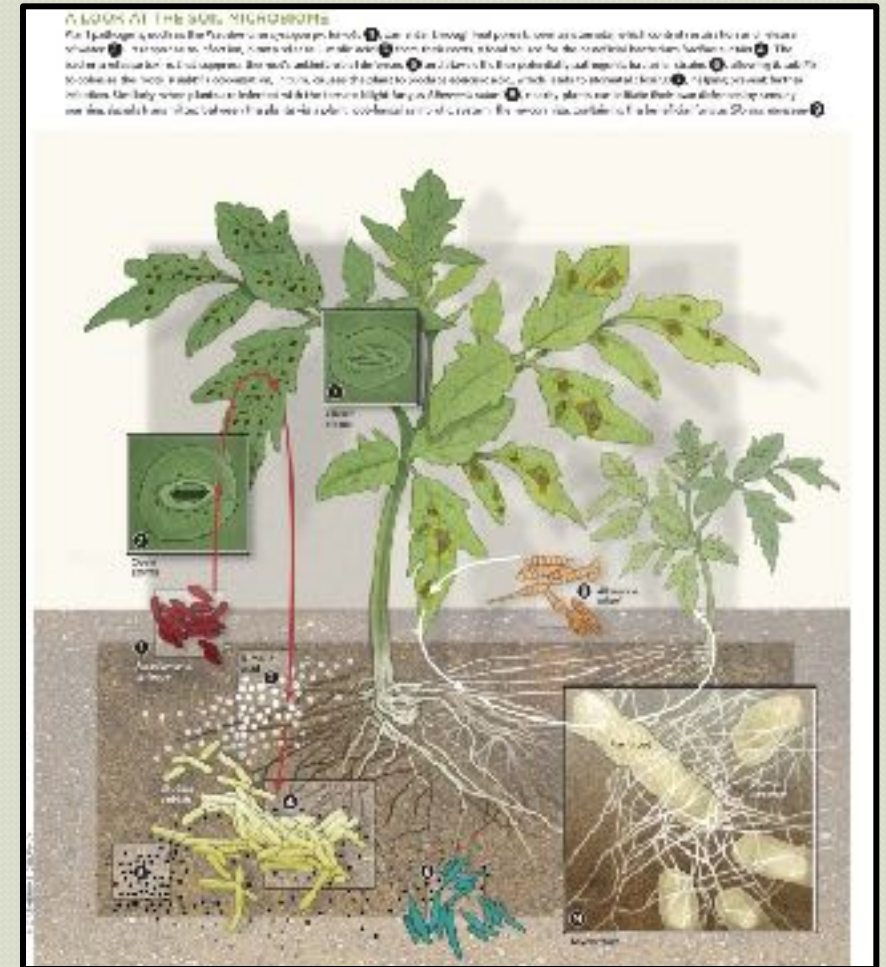
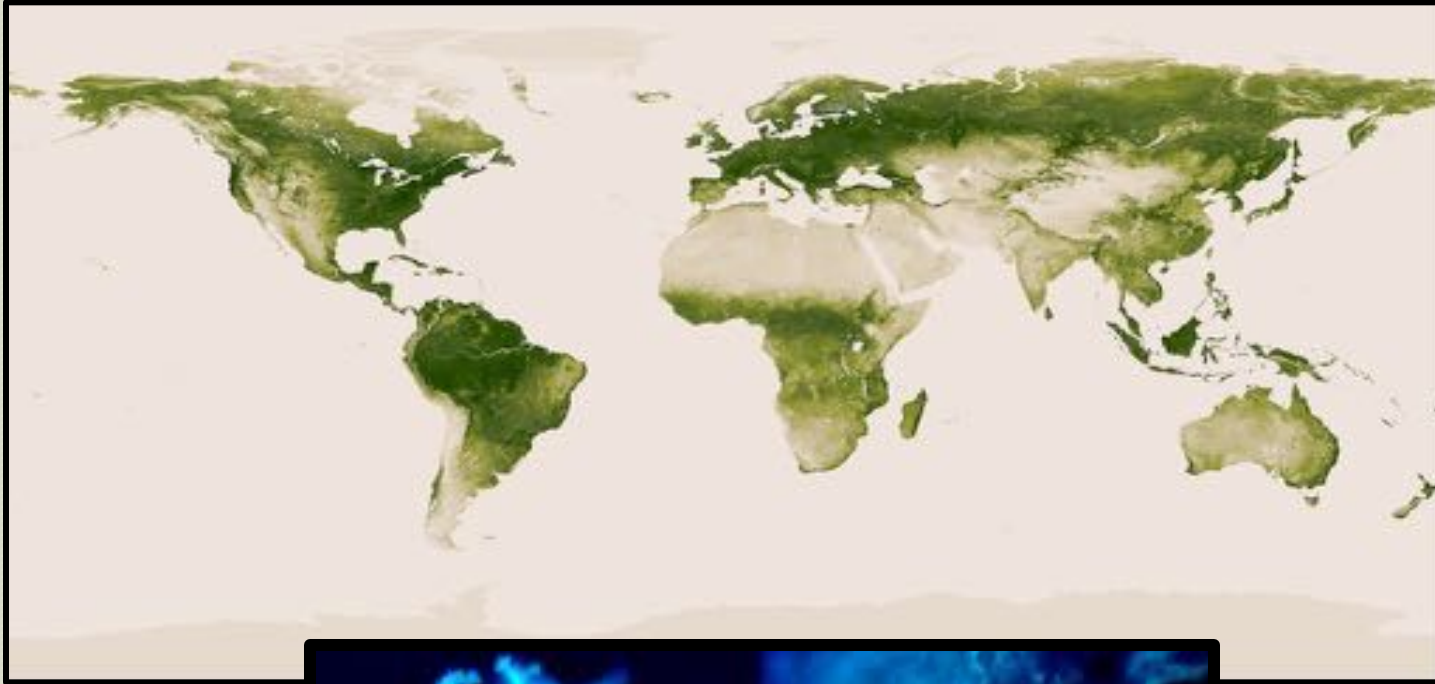
Key words Antibiotics • Antimicrobial resistance (AMR) • Environment • Health
• Livestock • One Health

The scale of antimicrobial resistance

In May this year, the long-awaited final report from the *Review on Antimicrobial Resistance* was published.¹ 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

Antibiotic Resistance and the Soil Microbiome



www.the-scientist.com

Antibiotics Use: from resistance to obesity?

The New York Times

MARCH 8, 2014

The Fat Drug

By PAGAN KENNEDY

Photo



Credit Jing Wei

The rhizosphere microbiome: significance of plant beneficial, plant pathogenic, and human pathogenic microorganisms.

Mendes R¹, Garbeva P, Raaijmakers JM.

- ¹Laboratory of Environmental Microbiology, Embrapa Environment, Jaguariuna, Brazil.

Abstract

Microbial communities play a pivotal role in the functioning of plants by influencing their physiology and development. While many members of the rhizosphere microbiome are beneficial to plant growth, also plant pathogenic microorganisms colonize the rhizosphere striving to break through the protective microbial shield and to overcome the innate plant defense mechanisms in order to cause disease. A third group of microorganisms that can be found in the rhizosphere are the true and opportunistic human pathogenic bacteria, which can be carried on or in plant tissue and may cause disease when introduced into debilitated humans. Although the importance of the rhizosphere microbiome for plant growth has been widely recognized, for the vast majority of rhizosphere microorganisms no knowledge exists. To enhance plant growth and health, it is essential to know which microorganism is present in the rhizosphere microbiome and what they are doing.



Soil Health for One Health, a New College Initiative

People

Partnerships

Penn State Courses on Soil Health

Invited Speakers

Soil Health for One Health, a New College Initiative

[Share](#)

Soil health has been defined as the soil's capacity to deliver all requirements for stress-free plant growth while minimizing off-site losses of soil, water, and nutrients to the environment.

From a global environmental perspective, soil health protects against erosion, desertification, and pollution, which threaten not only landscape sustainability but human health as well. The importance of soil health to ecosystem stability, water supply, and climate mitigation is spurring efforts by federal agencies to advance soil health education.



PennState
College of Agricultural Sciences

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Penn State Ag Scholar + Researcher + Strategist, Educator and Innovator Program (PSA-REIS) - Soil Health for One Health, a New College Initiative

Strategic Networks and Initiatives Program (SNIP)

Comparative Medicine & Research

Puccini Foundation

A vaccine developed in dogs is helping dogs with malignant melanoma and the findings have been applied to create a similar vaccine for humans!



OVARIAN CANCER SYMPTOM AWARENESS



glioblastoma multiforme, GMB
~ in humans and dogs



Comparative Medicine & Research

JAMA The Journal of the
American Medical Association

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April 19, 2016, Vol 315, No. 15 >

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Medical News & Perspectives | April 19, 2016

Researchers Turn to Canine Clinical Trials to Advance Cancer Therapies

Julie A. Jacob, MA

JAMA. 2016;315(15):1550-1552. doi:10.1001/jama.2016.0082.

Text S

[Article](#) [Figures](#)

This Medical News & Perspectives article explains how the study of naturally occurring cancer helping advance cancer research for humans.

About 6 million dogs are diagnosed with cancer each year, and more than half of dogs older than 10 years develop cancers such as osteosarcoma, lymphoma, or melanoma (<http://1.usa.gov/1OAxjB>). But the heartbreaking diagnosis for dog owners is a treasure trove of potential data for oncology researchers. In clinical trials at academic research centers across the country, veterinarians and physicians are studying how pet dogs respond to cancer therapies and analyzing the genetic makeup of these tumors. Although medicine and veterinary medicine, for the most part, have been viewed as 2 different worlds, with little exchange of information between the two, that is beginning to change.



We would like to congratulate Will Eward, MD, DVM, for being published in *The Journal of the American Medical Association*.

Researchers Turn to Canine Clinical Trials to Advance Cancer Therapies

Julie A. Jacob, MA

JAMA. Published online March 30, 2016

doi:10.1001/jama.2016.0082

About 6 million dogs are diagnosed with cancer each year, and more than half of dogs older than 10 years will develop cancers such as osteosarcoma,

lymphoma, or melanoma (<http://1.usa.gov/1OAxjB>). But the heartbreaking diagnosis for dog owners is a treasure trove of potential data for oncology researchers. In clinical trials at academic research centers across the country, veterinarians and physicians are studying how pet dogs respond to cancer therapies and analyzing the genetic makeup of these tumors. Although medicine and veterinary medicine, for the most part, have been viewed as 2 different worlds, with little exchange of information between the two, that is beginning to change.

<http://jama.jamanetwork.com/article.aspx?articleid=2511041>

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Report



The Role of Clinical Studies for Pets with Naturally Occurring Tumors in Translational Cancer Research: Workshop Summary

Released: October 30, 2015

Note: Workshop Summaries contain the opinion of the presenters, but do NOT reflect the conclusions of the Health and Medicine Division or the Academies. [Learn more about the differences between Workshop Summaries and Consensus Reports.](#)

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Details

Activity: National Cancer Policy Forum



Comparative Oncology Program

National Cancer Institute

Comparative Oncology Trials Consortium

The Comparative Oncology Trials Consortium (COTC) is an active network of twenty academic comparative oncology centers, centrally managed by the NIH-NCI-Center for Cancer Research's Comparative Oncology Program, that functions to design and execute clinical trials in dogs with cancer to assess novel therapies. The goal of this effort is to answer biological questions geared to inform the development path of these agents for future use in human cancer patients. Trials conducted by the COTC are pharmacokinetically and pharmacodynamically rich with the product of this work directly integrated into the design of current human Phase I and II clinical trials. Our trials are carried at COTC member institutions, which currently include 22 sites.

All veterinary universities that met the established criteria have been invited to join the Comparative Oncology Trial Consortium.

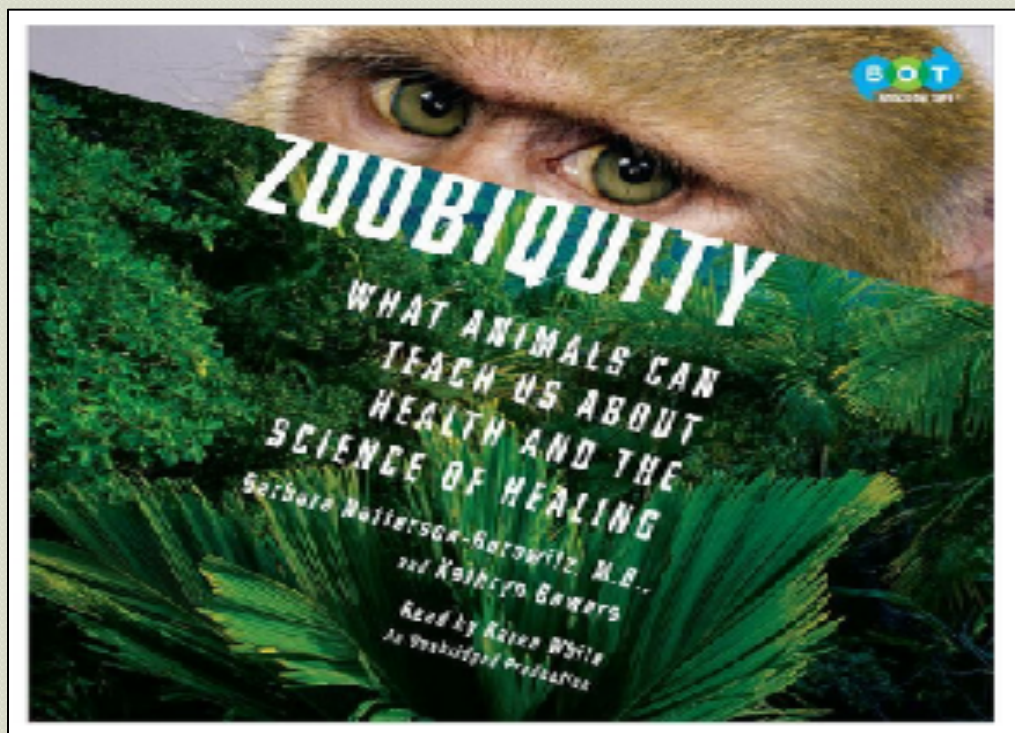
- [Auburn University, Auburn University, AL](#)
- [Colorado State University, Ft. Collins, CO](#)
- [Cornell University, Ithaca, NY](#)
- [Kansas State University, Manhattan, KS](#)
- [North Carolina State University, Raleigh, NC](#)
- [Oregon State University, Corvallis, OR](#)
- [Purdue University, West Lafayette, IN](#)
- [Texas A&M University, College Station, TX](#)
- [The Ohio State University, Columbus, OH](#)
- [Tufts University, North Grafton, MA](#)
- [University of California, Davis, CA](#)
- [University of Florida, Gainesville, FL](#)
- [University of Georgia, Athens, GA](#)
- [University of Guelph, Guelph, ON Canada](#)
- [University of Illinois, Urbana, IL](#)
- [University of Minnesota, St. Paul, MN](#)
- [University of Missouri, Columbia, MO](#)
- [University of Pennsylvania, Philadelphia, PA](#)
- [University of Tennessee, Knoxville, TN](#)
- [University of Wisconsin, Madison, WI](#)
- [Virginia-Maryland College of Veterinary Medicine, Blacksburg, VA](#)
- [Washington State University, Pullman, WA](#)

Auburn University Auburn, AL	Oregon State University Corvallis, OR	Tufts University North Grafton, MA	University of Guelph Guelph, ON Canada	University of Pennsylvania Philadelphia, PA
Colorado State University Ft. Collins, CO	Purdue University West Lafayette, IN	University of California Davis, CA	University of Illinois Urbana, IL	University of Tennessee Knoxville, TN
Cornell University Ithaca, NY	Texas A&M University College Station, TX	University of Florida Gainesville, FL	University of Minnesota St. Paul, MN	University of Wisconsin Madison, WI
Kansas State University Manhattan, KS	The Ohio State University Columbus, OH	University of Georgia Athens, GA	University of Missouri Columbia, MO	Virginia Tech Blacksburg, VA
North Carolina State University Raleigh, NC				Washington State University Pullman, WA





2016



Vector-borne Diseases



Anaplasmosis

Babesiosis

Bartonellosis

Borreliosis (Lyme Disease)

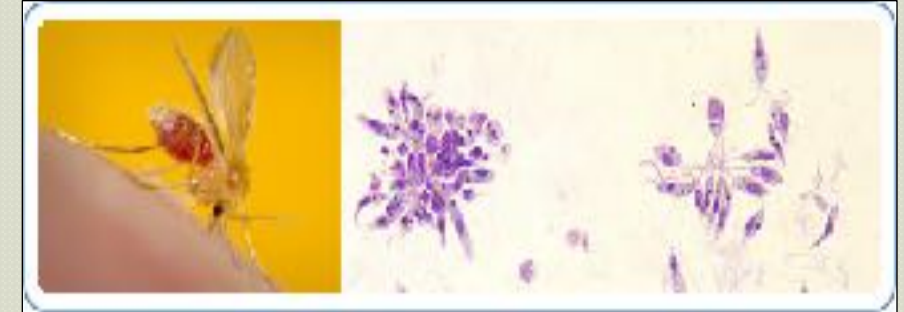
Leishmaniasis (cutaneous / visceral)

Rocky Mountain Spotted Fever

West Nile Virus

Yellow Fever

Zika Virus



Ect.....



[http://www.cbsnews.com/pictures/
10-most-terrifying-parasites-ever/8/](http://www.cbsnews.com/pictures/10-most-terrifying-parasites-ever/8/)

True Stories

1986

- 20 mo. old male, severe, chronic, watery diarrhea –
- Lasted over 6 weeks
- Contagious: Mom got it, Dad got it, quite debilitating
- Pediatrician unable to identify cause, treated symptomatically
- Baby: dehydrated, losing weight
- Both parents were DVMs.... Took soiled diaper to Vet School parasitologist





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!!!!

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



- Two weeks after returning home: swollen painful joints, fever, skin lesions, discolored fingernails, shortness of breath
- Radiographs = lung lesions
- Granulamatous visceral lesions



Anonymous Image



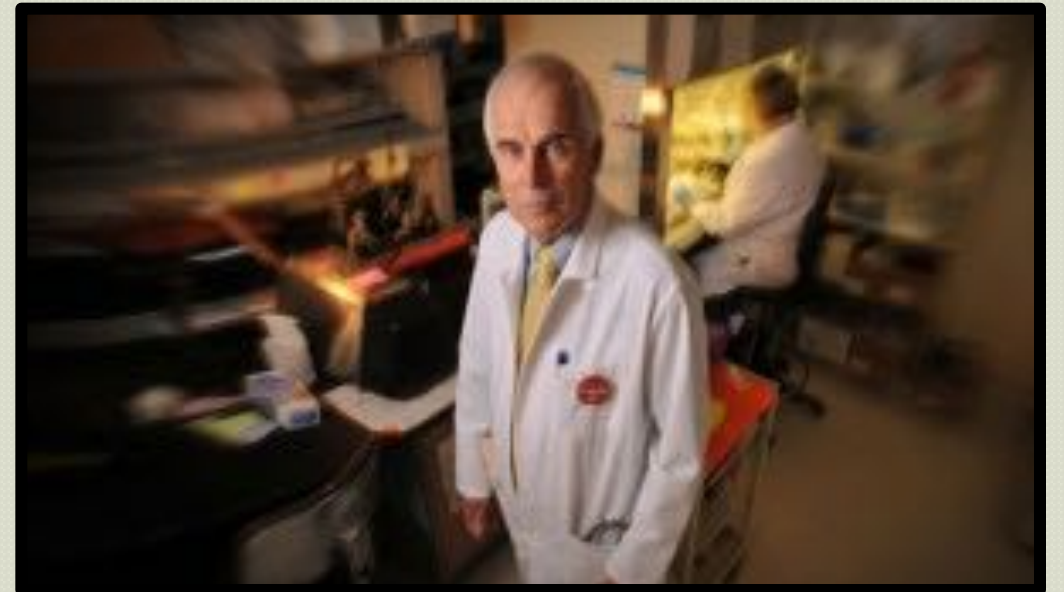


Anonymous Image

Two yr - 76 specialists later – 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 Vector Borne Disease lab at the at the NCSU Vet School.....found**





Anonymous Image

Two yr - 76 specialists 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 Vector Borne Disease lab at the at the NCSU Vet School.....found

Bartonella vinsonii





- After surgery - the surgeon reported to father - found no evidence of malignancy.
- Father answered, “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.”

**!! Need for a way to exchange information
Across professions !!**



Veterinary Medicine, Mind over Miller, July 2011

<http://veterinarymedicine.dvm360.com/vetmed/Medicine/Are-we-too-specialized-Part-1-Human-medicine/ArticleStandard/Article/detail/731458>





Ecological and Planetary Health



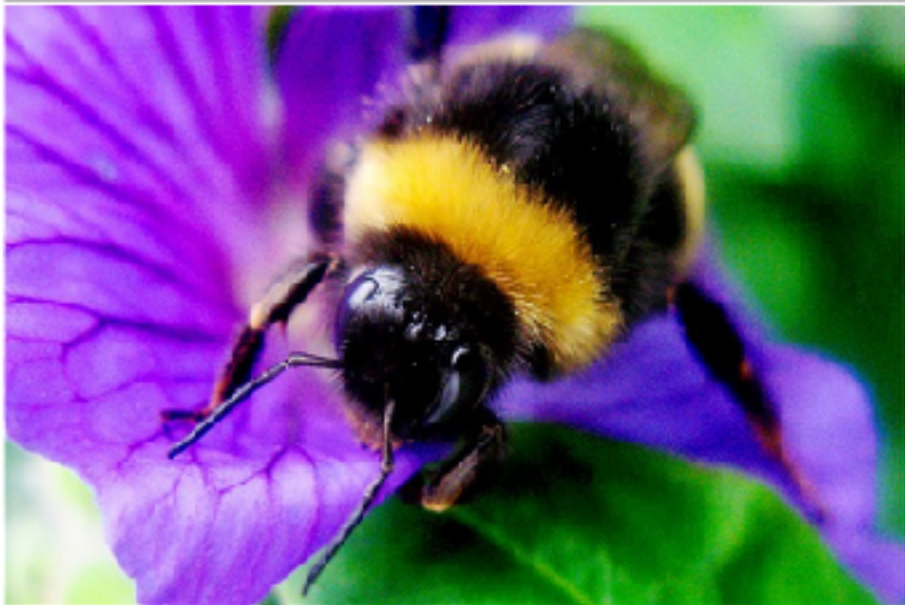
Declining Bee Populations Pose A Threat to Global Agriculture

Environment 360, Yale University

Apr 30, 2013: by elizabeth grossman

Bees and the crops they pollinate are at risk from climate change, IPCC report to warn

Climate change will exacerbate the risk of extinction for bees and other pollinating insects already under threat from pesticides and habitat loss, experts say



<http://www.telegraph.co.uk>

Photo: PA , March 29, 2014

“The danger that the decline of bees and other pollinators represents to the world’s food supply was highlighted when the European Commission decided to ban a class of pesticides suspected of playing a role in so-called “colony collapse disorder.”





Monarch Butterflies Struggling
for Survival due to:
Climate Change
Loss of Habitat
Insecticides in the environment

Monarch Migration Plunges to Lowest Level in Decades

The number of monarch butterflies that completed an annual migration to their winter home in a Mexican forest sank this year to its lowest level in at least two decades, due mostly to extreme weather and changed farming practices in North America, the Mexican government and a conservation alliance reported on Wednesday.

By [MICHAEL WINES](#) NY Times: March 13, 2013



All professions are needed to make One Health
the default way of doing business at all levels of academia,
research, clinical practice, government
and policy.

Agriculturalists	Ecologists
Animal Health Practitioners	Geologists
Anthropologists	Human Health Practitioners
Chemists	Horticulturalists /
Climatologists	Plant Pathologists
Engineers	Social Scientists / Behaviorist
Entomologists	Wildlife Specialists
	Forestry Specialists



What 'ARE' the Challenges for developing needed One Health Collaborations???

Our Systems.....

- 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)



**** No voice or forum in which
to communicate and 'act'
across disciplines and professions**

July/August 2017



David Dyjack, DrPH, CIH

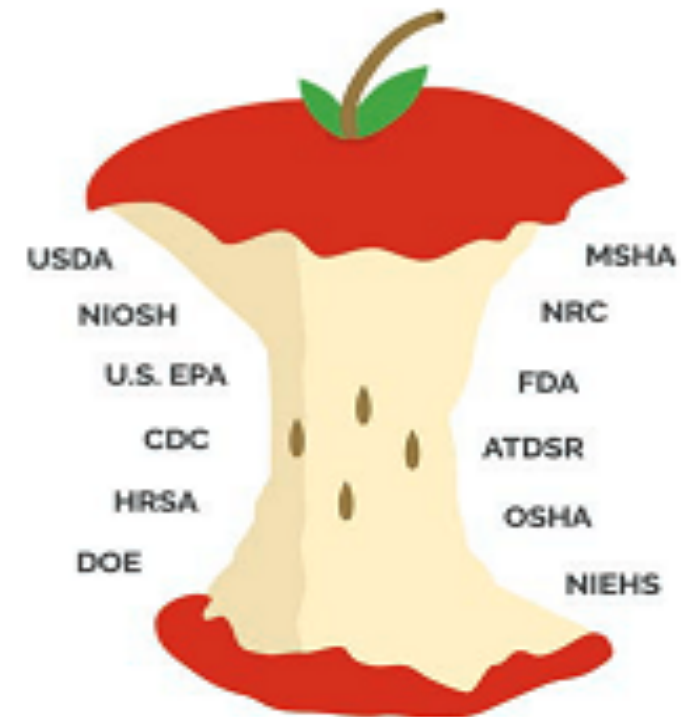
Professional (dis) Association

<http://www.neha.org/sites/default/files/jeh/JEH7-8.17-DirectTalk-Professional-dis-Association.pdf>



“My friends, our next cosmic journey is to harmonize our messaging and priorities, and to ensure they are packaged and presented in a manner that resonates with society’s values and beliefs.”

Select Federal Players in the Environmental Health Landscape



One Health Wake Up Call !!

We need a way to connect, communicate,
learn and work ACROSS disciplines



From: Environmental
Toxicology and Chemistry,
Vol. 35, No. 10,
October 2016

Int' Union for
Conservation
of Nature (IUCN)
AHEAD Forum
2003



WCS – 12
Manhattan
Principles

2004, 2005, 2007, 2009
Wildlife Conservation Society
holds One Health Symposia in
Bangkok, China, Brazil and Brazil
respectively

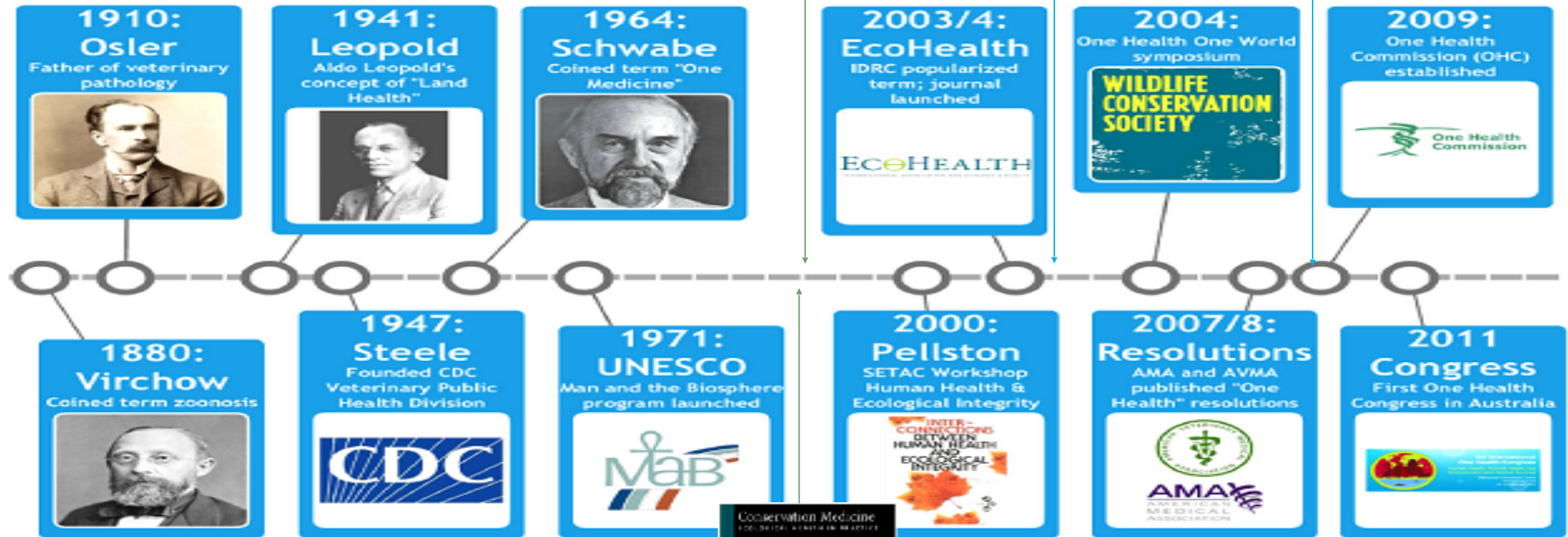
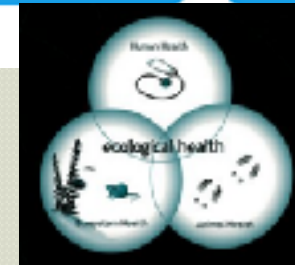


FIGURE 1: One Health timeline.

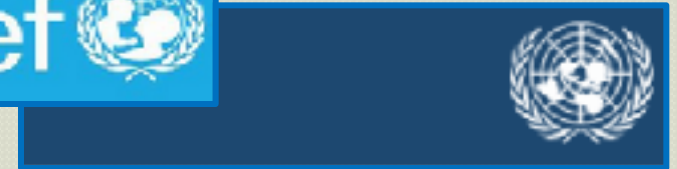
Conservation Medicine
Ecological Health in Practice
2002



2002



2008: FAO, OIE, WHO, UNICEF, UNSIC, World Bank develop joint pandemic flu response plan



2008: (October)

A banner for the One Health Initiative featuring a globe with a caduceus on the left and a stethoscope on the right, with the text "One Health initiative" in the center.

One Health Initiative will unite human and veterinary medicine

The One Health Initiative is a movement to forge co-equal, all inclusive collaborations between physicians, osteopathic physicians, veterinarians, dentists, nurses and other scientific-health and environmentally related disciplines, including the American Medical Association, American Veterinary Medical Association, American Academy of Pediatrics, American Nurses Association, American Association of Public Health Physicians, the American Society of Tropical Medicine and Hygiene, the Centers for Disease Control and Prevention (CDC), the United States Department of Agriculture (USDA), and the U.S. National Environmental Health Association (NEHA). Additionally, more than 800 prominent scientists, physicians and veterinarians worldwide have endorsed the initiative.

[more about one health](#)

Emerging and Reemerging infections - 70% vector-borne or zoonotic

A world map showing the distribution of emerging and reemerging infections. The map is color-coded: yellow for Arthropod-borne, red for Bacterial, and purple for Other (including viral). Various locations are marked with colored dots and labeled, including Guernsey, Mexico, India, China, and others. A legend at the bottom identifies the color coding.

[view large map](#)

2009

- The One Health Office is established at CDC
- USAID established the Emerging Pandemic Threats program -
- Predict – Respond – Prevent – (infectious diseases)



- One World, One Health Expert Consultation in Winnipeg, Manitoba
- U.S. One Health Commission is chartered as a 501c3 non-profit



2009 IOM (now NAM) of the National Academies of Science, Engineering and Medicine / One Health Commission Summit

EXECUTIVE SUMMARY OF THE ONE HEALTH COMMISSION SUMMIT

On Tuesday, November 17, 2009, the One Health Commission in partnership with the National Academies co-hosted a groundbreaking summit convening leading health science experts and policy makers across the human, animal, and ecosystem disciplines. The One Health Commission Summit raised awareness of the importance of transcending institutional and disciplinary boundaries to improve the health of people, animals, and the environment.

Speakers called for integrated solutions and collaborative leadership to address the significant challenges of a changing environment.

The One Health Commission Summit was dedicated to the late Dr. Ronald M. Davis, who worked to enhance collaboration between the human and veterinary medical professions as president of the American Medical Association. According to Dr. Roger Mahr, Chief Executive Officer of the One Health Commission, "It is most fitting today that we acknowledge the visionary leadership and collaborative spirit of Ronald M. Davis, M.D." Dr. Davis' leadership helped pave the way for the establishment of the One Health Initiative Task Force, the precursor to the newly formed One Health Commission.

A series of keynote addresses was delivered by senior officials at the U.S. Department of Agriculture, College of Veterinary Medicine at The Ohio State University, Centers for Disease Control and Prevention, Food and Drug Administration, and Minnesota Department of Natural Resources. These speakers called for integrated solutions and collaborative leadership to address the significant challenges of a changing environment populated by interconnected animal, human and ecosystem interactions.

EXPERTS SHARE UNIQUE PERSPECTIVES ON ONE HEALTH



Doug O'Brien, Senior Advisor to the Secretary of the U.S. Department of Agriculture (USDA), delivered the first keynote address, calling for an interdisciplinary approach to the studies of human, animal and ecosystem health. He offered a new vision of one of the USDA's highest priorities – monitoring the

2010 – OH Tripartite Note

WORLD ORGANISATION FOR ANIMAL HEALTH
Protecting animals, preserving our future

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FOR THE MEDIA

- OIE PHOTO-COMPETITION
- Infographics
- Press releases
- Editorials
- Press packs
- Animal diseases
- Key documents
- Multimedia

One Health

One Health "at a glance" – More effective control of global health risks
International collaboration – Strengthening multi-sectoral collaboration at the national level

Protecting "One Health"

The "One Health" concept was introduced in the 2000s. In the 2000s, it emerged as a global approach to understanding and managing the links between human, animal and environmental health. It is now a global approach to understanding and managing the links between human, animal and environmental health. It is now a global approach to understanding and managing the links between human, animal and environmental health.

ONE HEALTH

also in AGA website...

- FAO as One Health: Moving Forward
- FAO in development of major initiative to combat infectious diseases
- Livestock in Southeast Asia

Agriculture and Consumer Protection Department
Animal Production and Health

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
for a world without hunger

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ONE HEALTH

FAO in One Health: working proactively instead of reactively

The current approaches to animal disease prevention and control emphasize transmission disruption. Whilst critically important, this approach in itself does not address the root causes of disease emergence. To better comprehend disease emergence at its most

World Health Organization

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Cost effectiveness and strategic planning (WHO-CHOICE)

OneHealth Tool

The OneHealth Tool is a software tool designed to inform national strategic health planning in low- and middle-income countries.

While many costing tools take a narrow disease-specific approach, the OneHealth Tool attempts to link strategic objectives and targets of disease control and prevention programmes to the required investments in health systems. The tool

WHO-CHOICE

- One health Tool
- Global price tags
- GeoAccess
- Economic burden of disease
- Documents

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- Cost-effectiveness
- Health systems

http://www.who.int/influenza/resources/documents/tripartite_concept_note_hanoi_042011_en.pdf

2011

- The 1st International One Health Congress is held in Melbourne, Australia
- The 1st One Health Conference in Africa is sponsored by OHCEA
- Tripartite organized a High Level Technical OH Meeting in Mexico City



2012

- USDA One Health Office is established



2013

The 2nd International One Health Congress is held in conjunction with the Prince Mahidol Award Conference, Bangkok, Thailand



2014

- International One Health Research Symposium held in China
- International Conference on One Medicine, One Science (ICOMOS) held in at University of Minnesota

2015

- 3rd International One Health Congress, Amsterdam, Netherlands
- World Medical Association / World Veterinary Association Joint One Health Meeting, Madrid, Spain



2015

ELSEVIER

SEARCH

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One Health

Editors-in-Chief: John M. Musken, Albert Osterhaus
View Editorial Board

One Health



animals and their
environments.



One Health:
it's all connected

Driving
Forces

Welcome to the One Health Platform web portal, the virtual meeting place for the fast growing One Health community.



The Movement

United States Senate

WASHINGTON, DC 20510

February 12, 2015

The President
The White House
1600 Pennsylvania Avenue, NW
Washington, DC 20500

Dear Mr. President:

As you address current and future zoonotic diseases — human diseases with animal origins — we write to urge you to pursue a multidisciplinary, multisectoral approach that encompasses both human health expertise, and animal and environmental health disciplines.

As you know, the Ebola virus disease outbreak that continues to devastate West Africa was caused by transmission of the virus from an animal into the human population. According to the Centers for Disease Control and Prevention (CDC), such zoonotic diseases account for approximately 75% of all recently emerging infectious diseases. The concept that the health of humans is connected to the health of animals and the environment, is often referred to as the One Health approach which often includes physicians, veterinarians as well as ecologists to monitor and control public health threats. Although One Health is widely recognized to be integral to efforts to combat zoonotic disease, the collaborative effort of multiple disciplines required to address such disease outbreaks that occur at the human-animal interface has yet to materialize in a substantive way.

Sincerely,



Al Franken
United States Senator



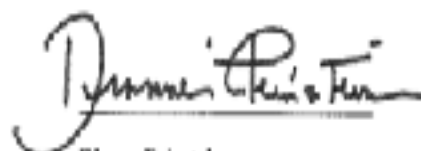
Christopher A. Coons
United States Senator



Kirsten Gillibrand
United States Senator



Mark R. Warner
United States Senator



Dianne Feinstein
United States Senator



Michael Bennet
United States Senator



Connect, Create, Educate

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LD, FADA, Representing the
International Food Information
Council Foundation

Date: June 30, 2015

The President
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500, USA

Dear Mr President:

On behalf of the community of One Health advocates and stakeholders, the One Health Commission, a 501(c)3 non-profit organization, and the signatories below, writes to urge creation of One Health platforms in both the United States (U.S) and the United Nations (U.N).

As the seven U.S. senators (February 12, 2015 letter to you), the American Veterinary Medical Association (AVMA, letter of March 12, 2015) and the American Public Health Association (APHA, letter of May 21, 2015) have noted, the One Health Commission is acutely aware of the consequences of operating in separate health professional "silos". Within the past century many of those working within our human and animal health systems have evolved from generalist "healers" to highly trained specialists within discrete areas of medical practice. While specialization has resulted in targeted research and applications that have significantly advanced our medical knowledge and health, that



Just what should the White House do?

1. At the Federal level, create a standing, U.S. Inter-Agency One Health Committee that would regularly convene relevant Federal agencies to address One Health issues.
2. At the State level, create One Health standing committees to collectively convene, several times a year
3. At the International level, the U.N. could create an International One Health Standing Committee that convenes at least once a year to discuss One Health approaches to critical global health concerns such as antimicrobial resistance and the health impacts of climate change.

S. 2634

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

IN THE SENATE OF THE UNITED STATES

MARCH 3, 2016

Mr. FRANKEN 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.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the “One Health Act of 2016”.

SEC. 2. INTERAGENCY ONE HEALTH PROGRAM.

(a) IN GENERAL.—The President, acting through the National Science and Technology Council, shall coordinate and support a national, interagency One Health Program to address infectious diseases in animals and the environment, and to help prevent the transmission of known and emerging infectious diseases between animal populations and human populations.

2016

<http://oheh2016.org/>



<http://www.cvent.com/events/2nd-global-conference-on-one-health/>



State Public Health Departments – One Health

Arizona
Kentucky*

Idaho

Maryland

Massachusetts

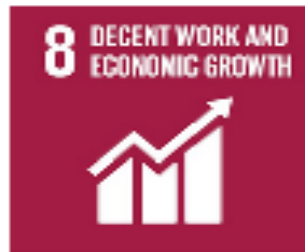
New Mexico

North Carolina

Tennessee







On September 25th 2015, countries adopted a set of goals to **end poverty**, **protect the planet**, and **ensure prosperity for all** as part of a **new sustainable development agenda**. Each goal has specific targets to be achieved over the next 15 years.

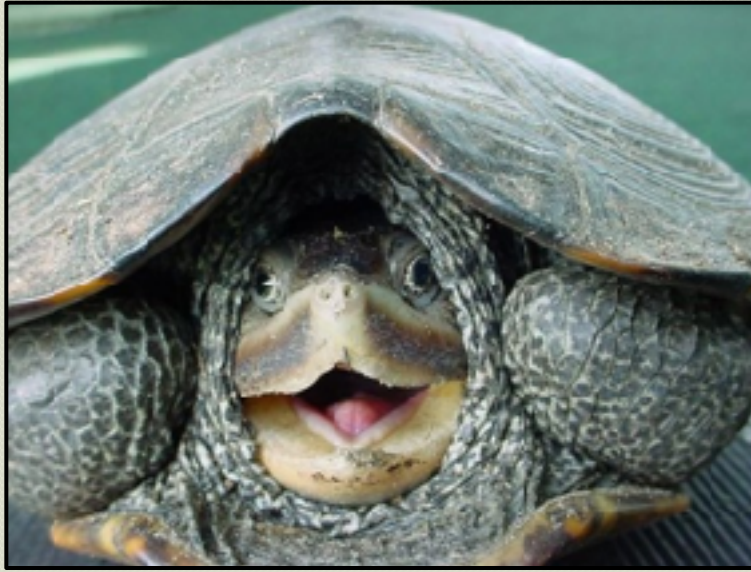
For the goals to be reached, everyone needs to do their part: governments, the private sector, civil society and people like you.



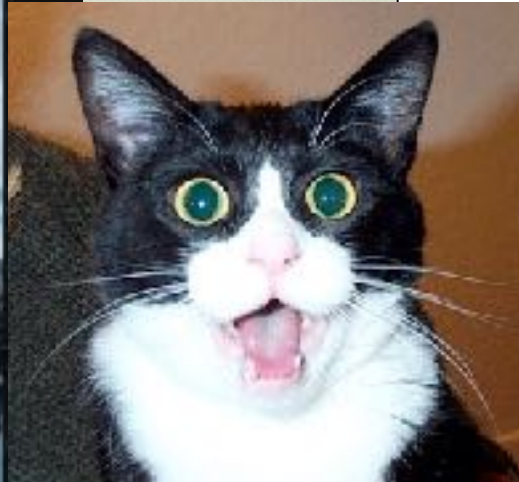
Smithsonian



Smithsonian Institute Exhibit –
Zoonoses and One Health
– coming in 2018



What Can We Do?



2009



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**IMPROVING THE HEALTH OF PEOPLE,
ANIMALS, PLANTS AND OUR ENVIRONMENT**

See 'What' we are doing

"CONNECT" - One Health Stakeholders to

"CREATE" - Strategic Networks/Teams/Partnerships that will

"EDUCATE" - About One Health issues.

[OH Public Service Announcement](#)

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Support The Commission



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Become a sponsor of the One Health Commission. Apply your passion and skills to improving the health of humans, animals, plants and the environment.

Students for One Health



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One Health in the News



05/28/15 One Health Interprofessional Education Working Group Calls for Case Studies

The recent Ebola outbreak, growing antimicrobial...

One Health Hot Topics



****** HOT TOPICS ******

Seven US Senators send One Health Congressional Letter to White House, February 2015

<https://www.onehealthcommission.org/>



**ESTABLISHING CLOSER COLLABORATION
AMONG ALL HEALTH-RELATED DISCIPLINES**

'What' we are doing to:

"CONNECT" - One Health Stakeholders to

"CREATE" - Strategic Networks/Teams/Partnerships that will

"EDUCATE" - About One Health and One Health issues.

[GU Public Service Announcement Del. Rabies Posters](#)

[What is One Health?](#)

[CHC Action Teams](#)

[CHC Letter to The White House](#)

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

➤ Connecting One Health Stakeholders – we can accomplish more

<https://goo.gl/5LkM5w>



FIRST ANNUAL
**one
health
DAY**

november 3, 2016

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

created and hosted by

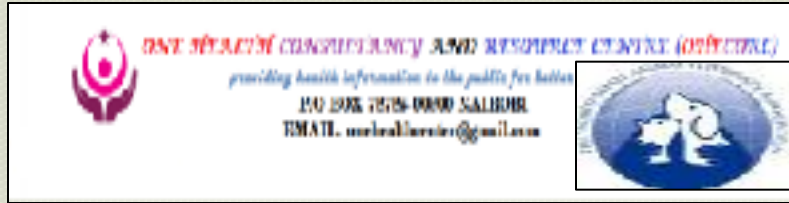
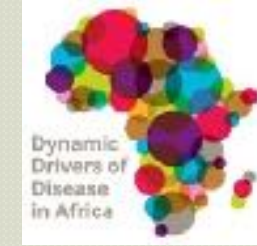
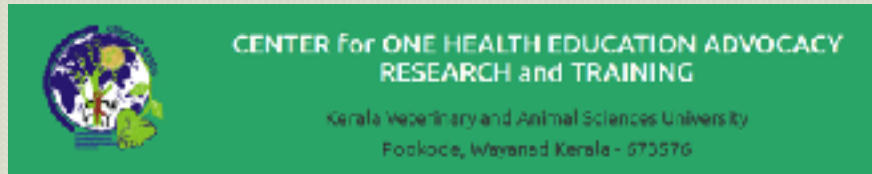


✓ check **www.onehealthday.org** for more information

<https://goo.gl/OIfN3E>



<https://goo.gl/AWKZwg>



➤ Connecting One Health Stakeholders –
we can accomplish more *together*

Chatham House

InterAction Council

Planetary Health Alliance

APHA

EcoHealth Alliance

One Health Initiative

One Health Platform

World Veterinary Medical Assoc.

World Medical Assoc.

NEOH

OIE

Economic Council on Planetary Health

➤ Educating about One Health and One Health Issues

<https://goo.gl/SVVyKF>

Welcome to the Webinar

An edited version of this video is available on this channel. Editing the synchronization of video and slides for the second half of the webinar.



Understanding Bartonella: A One Health Perspective

The broadcast will begin momentarily

The One Health Commission is proud to support and share announcement of a free webinar:

"Antimicrobial Resistance in the Environment" by Dr. Laura Kahn


Webinar Date/Time:
July 13, 2016 @ 11am-12pm EDT

Overview:

This presentation will discuss findings of widespread antibiotic resistance in the environment. Massive amounts of human and animal waste applied to agricultural fields alter the global "resistome." Wildlife never exposed to antibiotics harbor antibiotic resistant bacteria in their feces. The Human Microbiome project has found that microbial cells outnumber human cells by an estimated 10-fold, fundamentally changing our perceptions about health and disease. Taken together, the findings of antibiotic resistance in external and internal environments suggest that human antibiotic use has altered global microbial populations in ways that we do not fully understand. We are fast approaching a post antibiotic era. This presents challenges and opportunities and will require a One Health approach to succeed.



Welcome to the Webinar:
A One Health Approach for Elimination of *Taenia solium* Taeniosis/Cysticercosis



One Health Commission
Connect - Create - Educate

Online support for this broadcast provided by the One Health Commission
www.onehealthcommission.org



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Webinars

Commission Hosted

- Antimicrobial Resistance in the Environment: A One Health Perspective (July 13, 2016)
[Click here to view the recorded presentation](#)
- One Health and the Politics of Antibiotic Resistance (July 6, 2016)
[Click here to view the recorded presentation](#)
- A One Health Approach for Elimination of *Taenia solium* Taeniosis/Cysticercosis (June 28, 2016)
[Click here to view the archived recording and access presenter's slides](#)
- 1st International 'Who's Who' in One Health Webinar (November 10, 2014)
[Click here to view the recorded conversations](#)

WHO'S WHO IN ONE HEALTH

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- Factheets and Educational Material
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ON ACTION TEAMS AND PROGRAMS

NARRATIVES OF ONE HEALTH ACTION

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National Pet Health Survey
Healthy Pets, Healthy People

'What' we are doing to:

"CONNECT" - One Health Stakeholders to

"CREATE" - Strategic Networks/Teams/Partnerships that will

"EDUCATE" - About One Health and One Health issues.

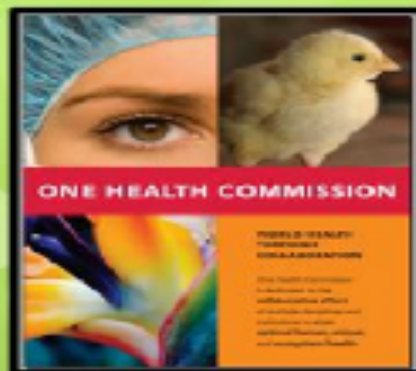
[OH Public Service Announcement](#)

[Bat Rabies Posters](#)

[What is One Health video](#)

[OHC Action Teams](#)

[OHC Letter to The White House](#)



The Charter of the One Health Commission:

- to 'Educate' and 'Create' networks to improve health outcomes and well-being of humans, animals and plants and to promote environmental resilience through a collaborative, global One Health approach.



ONE HEALTH COMMISSION (OHC) ACTION TEAMS

We invite you to become **ACTIVE** in
Advancing the One Health Way of Thinking

We believe that One Health 'can' become the default way of doing business when individuals and groups from around the world work together in organized team efforts. Bring 'your' energy, expertise and passion for One Health to an OHC 'ACTION' Team to help make a difference for global public health and, ultimately, the

➤ Educating about One Health and One Health Issues

<https://goo.gl/3YwqD1>

The World We Need

PREPARING SOCIETY TO CREATE THE WORLD WE NEED
THROUGH ONE HEALTH EDUCATION



One Health Education Concept Paper



www.onehealthcommission.org



www.onehealthinitiative.com

June 9, 2016 For Immediate Release

Preparing society to create the world we need through 'One Health' education!

Two leading international One Health groups, the [One Health Commission](http://www.onehealthcommission.org) and the [One Health Initiative](http://www.onehealthinitiative.com) Autonomous *pro bono* Team are partnering to help create and promote a comprehensive global education revolution that supports curriculum innovation on the unifying interconnected health of humans, animals, and the environment that sustains all life on earth. A Concept paper titled '[Preparing society to create the world we need through 'One Health' education](#)' has been released calling for interested parties to step forward to help with planning. The One Health concept encompasses a wide range of global public health and comparative medicine endeavors.

<https://goo.gl/91jbtI>

Bat Rabies Education

Rabies is a deadly yet preventable disease that can be transmitted to people by mammals, including bats. It is a quintessential One Health issue living at the interface of human, animal and environmental domains.

The One Health Commission is pleased to identify gaps in One Health arenas and to support volunteer One Health Action Teams to address the needs. When it was recognized that there is no focused public health effort in the Americas to educate children and parents that bats can carry deadly rabies virus, the Bat Rabies Education One Health Action Team was born.

This dedicated Team is actively working to get educational posters, developed in partnership with the Global Alliance for Rabies Control and Bat Conservation International, in front of children and parents across the United States and, eventually, into Central and South America. The Commission is proud to also offer on its website educational resources about bats and rabies.

Not all bats have rabies but most human cases of rabies in the United States are caused by bats. Our goal is to make everyone, especially children and parents, aware of the risk of rabies transmission from bats. For more information please contact a member of the [Bat Rabies Education Team](#) or send us email at batrabies@onehealthcommission.org.

Key Messages

- Never touch a bat - bats can have rabies
- You can't tell if a bat has rabies just by looking at it
- If bitten, wash the wound and see a doctor
- If you come into contact with a bat, tell an adult or health professional
- Keep pets rabies vaccines up to date to protect both people and pets

Unusual Bat Behavior

- Daytime activity
- Inability to fly
- Flapping on ground
- Unusual sounds

Rabid Bat Behavior

- Fluttering on the ground
- No fear of people
- Hissing
- Expanding wings

Posters

Never Touch a Bat - CHILDREN (English) (Español) (Portugues)



One Health Commission Bat Rabies Survey

* 1. What is your first name?

<https://www.surveymonkey.com/r/batrabies>

Newly Forming OH Action Teams

- OH and the Social Sciences Team
- OH –Ecology / Environment Team

Watch for them / Get involved!!

➤Nurturing the Next Generation of One Health leaders

Summary of First Students for One Health (SOH) online Meeting (March 30, 2015) <https://goo.gl/HpQqtp>

Students for One Health
First Web Conference
MARCH 30, 2015 (9am-10:30am)
Hosted by the One Health Commission



<https://goo.gl/TBC8Ak>

July 30, 2017

Students for One Health Announcement

ATTENTION!!!

**Calling all Students working for One Health
(students only)**

**Vote for Students For One Health (SOH)
Executive Council Leaders**

August 12 deadline

One Health Commission <https://goo.gl/TBC8Ak> World Health Through Collaboration [DONATE NOW](#) [f](#) [t](#)

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STUDENTS FOR ONE HEALTH NEWS

1. Post your accounts and information about your groups One Health efforts and work on the page to share with other members of the global One Health community. Send to Cheryl Stroud cheryl@onehealthcommission.org

2. See your SOH group listed on the [WHO's Who's Who](#) in students for One Health webpage to help us connect SOH groups. Complete a SOH group information template and send to Cheryl Stroud cheryl@onehealthcommission.org

Students for One Health
Listserv Sign-up

- SOH Support
- SOH News Webpage
- SOH Listserv
- SOH Who's Who Map
- Online Meeting Platform

Inaugural SOH Officers 2017



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PhD candidate
Romanian Academy
Romania



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U.S.A.

**Calling ALL Students Everywhere
Working to Further One Health!!!**

Who's Who in Students for One Health



Collaborations

start with

Relationships!!

*Which start when we
come together in direct conversations*





One Health
is a pathway to
Planetary Health
and Global *Security*









Heal the Past.....

Live the Present....

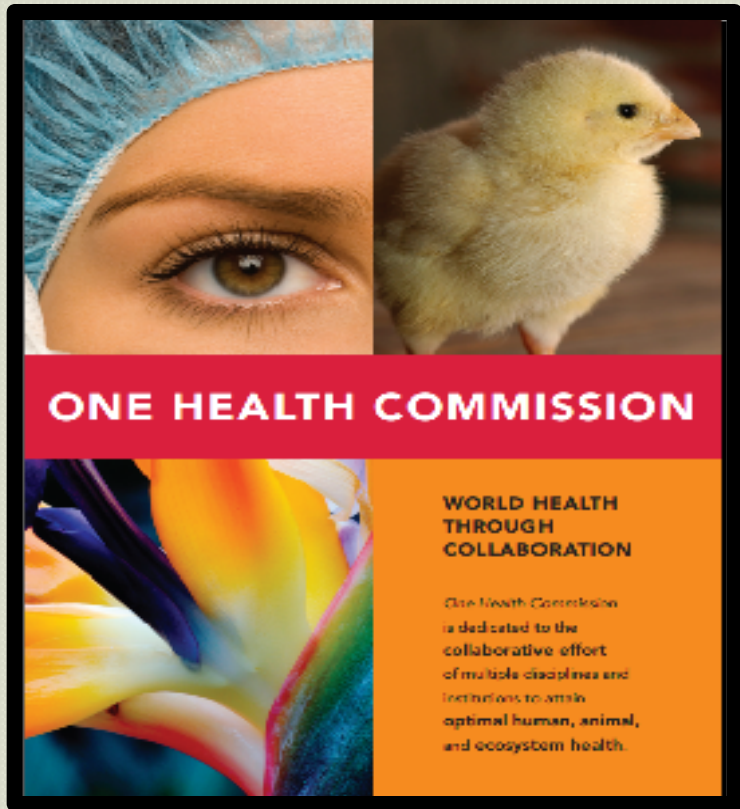


Dream the Future!

A new way of thinking

Bridge the Silos!

One Health thinking will lead us to the kinds of vision and interactions the early One Health players had, with the added benefits of all we have learned and are learning within our specialties



Dream the Future



“It’s Up to US”!!
the One Health Stakeholders, to make One Health the default way of doing business around the world!!

