Wayne Carter DVM, PhD, DACVIM
President and CEO
Lyme Disease
Animal-to-Animal Transmission
Evidence suggests that bats are the reservoir hosts for the Ebola virus. Bats carrying the virus can transmit it to other animals, like apes, monkeys, and duikers (antelopes), as well as to humans.

Spillover Event
A “spillover event” occurs when an animal (bat, ape, monkey, duiker) or human becomes infected with Ebola virus through contact with the reservoir host. This contact could occur through hunting or preparing the animal’s meat for eating.

Human-to-Human Transmission
Once the Ebola virus has infected the first human, transmission of the virus from one human to another can occur through contact with the blood and body fluids of sick people or with the bodies of those who have died of Ebola.

Survivor
Ebola survivors face new challenges after recovery. Some survivors report effects such as tiredness and muscle aches, and can face stigma as they re-enter their communities.
Carbon monoxide
Tobacco smoke
Lead
Asbestos
Carbon tetrachloride
Radiation
Radon
Ultraviolet radiation
Cyclophosphamide
Chlorambucil
Tamoxifen
Estrogens
Endocrine disruptors
  DES – diethylstilbestrol
  DDT – dichlorodiphenyltrichloroethane
  PCB - polychlorinated biphenyls
  BPA – bisphenol - A
The intersection of neurotoxicology and endocrine disruption

Bernard Weiss

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Abstract

Endocrine disruption, the guiding theme of the 27th International Neurotoxicology Conference, merged into the neurotoxicology agenda largely because hormones help steer the process of brain development. Although the disruption motif first attracted public health attention because of reproductive anomalies in both wildlife and humans, the neurobehavioral implications had been planted decades earlier. They stemmed from the principle that sex differences in behavior are primarily the outcomes of differences in how the brain is sexually differentiated during early development by gonadal hormones (the Organizational Hypothesis). We also now understand that environmental chemicals are capable of altering these underlying events and processes. Among those chemicals, the sex-related drugs administered to early rodents (EDCs) affect the brain's endocrine pathways.
One Health Implications of Antibiotics

Antibiotic Usage (in humans and animals)

Antibiotic Resistance (in humans, animals and soil)

Effect on Microbiome (in humans, animals, plants and soil)
Obesity and Antibiotic Prescriptions in US

CDC 2010 Behavioral Risk Factor Surveillance System

L Hicks, TH Taylor, RJ Hunkler. NEJM 2013, 368:1461

One Health Implications of Antibiotics

Antibiotic Usage (in humans and animals)

Antibiotic Resistance (in humans, animals and soil)

Effect on Microbiome (in humans, animals, plants and soil)

Impact on Obesity and other diseases (in humans and animals)
Candidate genes implicated in the pathogenesis of pediatric and canine osteosarcoma

- PTEN
- HER2/neu (erbB-2)
- Retinoblastoma
- Ezrin
- P53
- Villin-2
- C-met
- Mesenchymal-epithelial transition factor

Pediatric and canine osteosarcoma are not distinguishable by global gene expression analysis.

Cisplatin-Hyaluronan

Human **Proof of Concept** in client-owned dogs with spontaneous tumors

Canine – Pivotal blinded trial 150 dogs

Human – Phase 1, Non-resectable, treatment resistant head and neck Squamous Cell Carcinoma
1 Data

Interoperable database of animal health data built on the Cerner FHIR platform to enable linkage to human data

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We need more!

...more information sharing

...more interdisciplinary programs

...more therapeutics

Why do we need One Health?
“A definite purpose, like blinders on a horse, inevitably narrows its possessor’s point of view.”

Robert Frost