A New Medical Research Model: Optimizing health and welfare for animals and people

Patricia N. Olson, DVM, PhD, DACT, DACAW

Chief Veterinary Advisor – American Humane Association

Advisor – Skippy Frank Fund for Translation Medicine and Life Sciences

Advisory Board Member – Smithsonian National Zoological Park & Conservation Biology Institute; P&G Pet Care
Mission Statements

American Humane Association: To ensure the welfare, wellness and well-being of children and animals, and to unleash the full potential of the bond between humans and animals to the mutual benefit of both.

Skippy Frank Fund for Translational Medicine and Life Sciences: Seeking gentler and more effective therapies and preventions for all life.
American Humane Association’s 4 Planks

1. Humane Hollywood™
2. Humane Heartland™
3. Humane Intervention™
4. Humane Research & Policy™
   - Animal Welfare Research Institute
   - Children’s Innovation Institute

– www.americanhumane.org
American Humane Association’s Children’s Innovation Institute and Animal Welfare Research Institute will operate and fund innovative, collaborative and strategic science and training programs that advance the welfare, wellness and well-being of children and animals.

Focus on the topics of greatest concern to children and animals, and their families, filling a major gap that currently exists in corporate and academic research.

Interdisciplinary teams of researchers will be brought together to drive new methods of discovery and knowledge.

Experts from diverse disciplines, working together, will advance the science that ultimately changes how our world enacts programs that do the most good.
Example: Student Project at Texas A&M

• 2012 AHA survey: 44% of adults surveyed reported to still be affected by a childhood pet that was given away, ran away or had uncertain disposition

• 2013 Interdisciplinary team of students (medicine, veterinary medicine, psychology, business, marketing, wildlife, project management) to develop a business plan for the “U.S. Cat Issue”

  – Why are intake/euthanasia rates trending down for dogs but not cats?
  – How can more cats be adopted and retained in homes?
  – How can both feline and human behavior be addressed?
Rationale for a New Medical Research Model

Clues abound amongst > 60,000 vertebrate species, yet collaboration is not optimal

− Various cancer types in dog breeds, Tasmanian devils, grey horses, California Sea Lions, Santa Catalina Island foxes, etc.)

− Tuberculosis in children, elephants and other zoo animals, dairy cows, cats

− Respiratory syncytial virus in children and dairy calves

− Vaccine development (adverse reactions in cats and kids)
Rationale for a New Medical Research Model (cont)

Priorities not optimal

- Academic institutions – driven by ICR, publications, tenure, promotion
  
  • AAAS: Scientists spend >40% of their time writing grants, admin tasks

- Government – Congress questioning the need for peer review, believing they might want to establish priorities for NSF/NIH

- Non-profits – Priorities often established by donor’s interest
Rationale for a New Medical Research Model (cont)

The time for a new model is right

- Genomic research is rapidly advancing (10K project, Smithsonian project)
- Super biological computing - attempting to keep up with massive amounts of data
- P4 medicine is emerging (new paradigm for teaching, research and clinical practice)
P4 Medicine (Leroy Hood)

1. **Predictive** – virtual monitoring of blood & breath

2. **Preventive** – results used to tailor prevention

3. **Personalized** – knowing which drugs work

4. **Participatory** – patients/owners active partners

Mother & Angelina Jolie

Aunt
The public is becoming interested in new models

NY Times – June 2012
Personalized genomics (examples)

www.23andMe.com

www.personalgenomes.org

www.patientslikeme.com
Participatory

• National databases – Petsmart, Petco, Banfield, Purdue, Texas, TGen, Morris Animal Foundation, etc.

• International databases – Agria Insurance, Sweden

• Clinical trials – location of available animal trials?

• How to gather information on animals and their owners, collectively?
Participatory – Citizen Scientists

www.armyofwomen.org

“The key to ending breast cancer is to learn how to stop it before it starts.”
Dr. Susan Love, President, Dr. Susan Love Research Foundation

373,088 members as of June 20, 2013
Dr. Susan Love Research Foundation & Avon
Citizen Scientist Model

Learning about animals and the entire family
(AnimalsAndWe.org)

- Genetic and survey information on all family members
- Diet, environmental exposures, medications, vaccines, etc.
- Use new technologies (apps) to gather data and provide updates of health information
Clinical trials in the future? n=1?

The Creative Destruction of Medicine – Eric Topol, Scripps Research Institute

The End of Illness – David Agus, University of Southern California

“Perfect Storm” – Technology Meets Genomic Advancements

More cell phones than toilets on the planet
Raising Revenue for The Model

Hedge Fund Managers
Venture Capital
Venture Philanthropy
Corporations
Individual Donors
Foundations
Government
Crowd sourcing

In times of rapid change,
experience could be your worst enemy ~ J. Paul Getty
Combined Research benefitting animals and children

- Autism and OCD (TGen)
- Zoetis (formerly Pfizer Animal Health) Study (kids with cancer) – human/animal bond
- Surveys (effect of animal relinquishment on children)
- Food quality and safety; environmental risks
- Causes of morbidity and mortality (data for children and animals)
- Translational research (cancer, asthma, tuberculosis, diabetes, etc.)
- Vaccine development
Global unmet needs (examples)

- Food security
- Water safety
- Milk safety (Johne’s?)
- Viral diseases/mutating viruses
  - Influenza
  - HIV
  - West Nile
  - Equine encephalitis
  - Ebola
  - SARS
  - Others
- MDR and XDR diseases
- Prion, fungal diseases
- Cancer, arthritis, obesity, diabetes, cardiac, renal, dementia/Alzheimer’s

- Rapid and safe vaccine development
- Virtual diagnostic testing to identify changes
- Preventing and treating infectious diseases
- Epidemiologic evaluation of risk factors
- Regulations/safety of air transport industry

- Pain and suffering
- Economical impact
Addressing Cats

“America’s Most Popular Pet”

Data suggest that cats are not doing well

Planning September Forum: 2013 Cat Health & Welfare Summit

Goals: Convene stakeholders, review existing data, develop strategies for saving lives, providing better health services (rethinking all paradigms)
Student Scientist Program

Veterinary Student Scientist Program

- 4 successful projects completed in 2011
- 13 successful projects completed in 2012
- 22 students funded for summer 2013