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A Matter of Opinion is a forum that encourages experts to share their viewpoints about key topics—some challenging and others controversial—that affect the veterinary profession today. We invite you, our readers, to respond to this column by exchanging your comments in our Sound-ing Board column. Please submit your letters to cj@cliniciansbrief.com and remember to give your name, affiliation, and contact information.

One Health: A 21st Century “Back to the Future”

The concept of One Health has gained momentum in recent years and could well become one of the most important priorities for veterinary medicine in the next decade. It is important for today’s veterinarians to gain a full understanding of One Health and its implications so that medical and veterinary professionals can work in concert to protect and improve the health of humans and animals around the world.

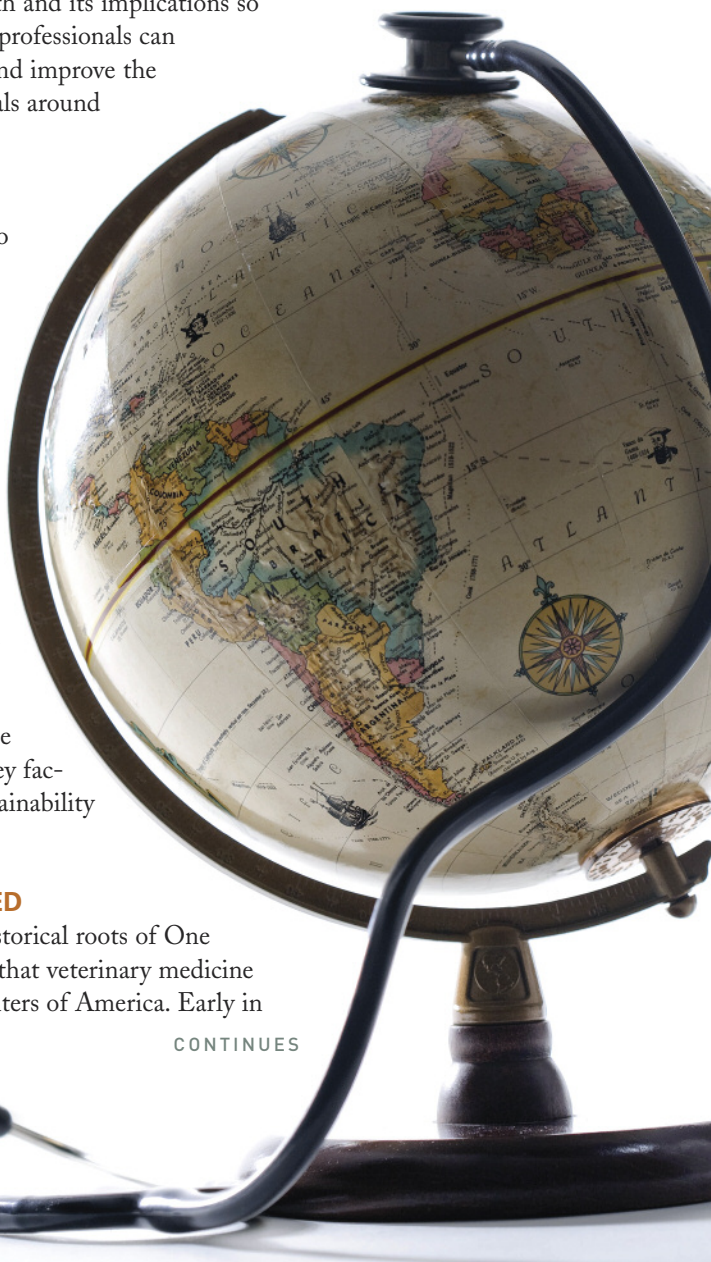
WHAT IS ONE HEALTH?

At its core, One Health (also known as One Medicine) describes veterinarians and physicians working together to advance the health and well-being of both humans and animals. In a broader concept, it also includes collaboration with members of the public health community and other health care professionals as well as biomedical research scientists. Many believe that environmental health is also part of the One Health initiative, as it is a key factor in global health and sustainability for all creatures.

THE FOOD CHAIN RULED

To better understand the historical roots of One Health, we must remember that veterinary medicine got its start in the urban centers of America. Early in

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the profession's history, some of the approximately 35 city-located veterinary colleges—including those at Harvard University, New York University, and George Washington University—were associated with major medical schools. By the 1920s, however, all except one of our veterinary colleges (the exception being University of Pennsylvania, which was an outgrowth of the medical school) were located in rural communities such as Pullman, Washington, and Ithaca, New York, or in small cities such as Columbus, Ohio. The land grant's agricultural priority governed veterinary college curricula and entrance requirements and, unfortunately, narrowed the veterinary community's understanding of One Medicine to the (albeit important) priority for public health.¹

Meanwhile, human medicine thrived in the population centers of the country and physicians devoted their energy to advancing medical diagnoses and treatments and developing clinical specialties that enhanced individual patient care. Ironically, starting as far back as the late 1800s, physicians also became experts in canine physiology, pathology, and surgery. They developed important veterinary medical and surgical techniques decades before veterinarians did, even those who were working and teaching in veterinary colleges. The medical profession used dogs as correlates for human medicine,

and most of this work was done in the absence of veterinarians.²

Instead, veterinarians continued to promote human health by ensuring the safety of the food supply, preventing major zoonotic scourges such as salmonellosis and tuberculosis, and controlling the dreaded scourge of rabies. Unfortunately, there was less and less contact between physicians and veterinarians, with each working in their respective spheres.

ZOONOTIC DISEASE MAKES A COMEBACK

By the mid-20th century, veterinary prophets advocated for a resurgence of One Health. Among them were Dr. James H. Steele, the father of veterinary public health, and Dr. Calvin W. Schwabe, who developed the parallel field of veterinary epidemiology. Zoonotic diseases once again took center stage, and the comparative medical education of veterinarians enabled many important clinical and research advances in human health. Dr. Tracey McNamara's groundbreaking work on West Nile virus at the Bronx Zoo in 1999 helped solidify the veterinarian's role in the diagnosis, treatment, and prevention of zoonotic disease.

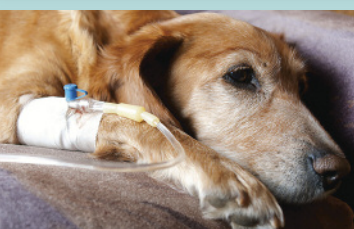
In 2006 and 2007, Dr. Roger Mahr used his position as AVMA president to advocate for a 21st century movement in One Health. He and colleagues in veterinary medicine and other health professions have forged leadership alliances from

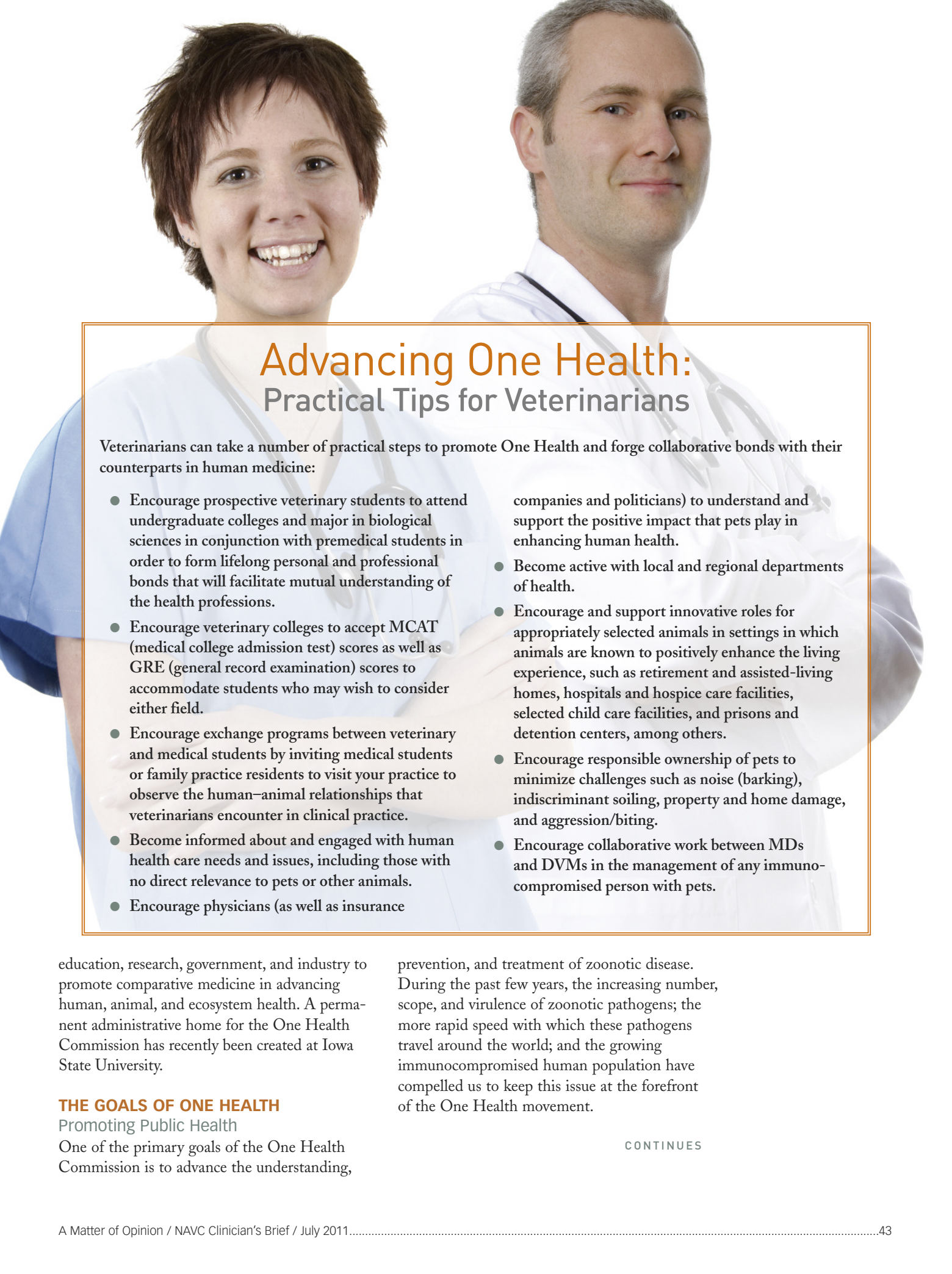
THE ROOTS OF COLLABORATION

The concept of One Health was a central theme in the early days of our profession. Cornell's first veterinary dean, James Law, promoted the notion in an 1878 address to the Pennsylvania Department of Agriculture³:

"Now that veterinary medicine has been established on a scientific basis, the time has come when the bonds that unite the students and practitioners of human and veterinary medicine should be knit more closely, and the two branches be brought into more intimate relationship. Both branches of medicine suffer from separation.... Each is necessary to the rapid progress and highest advancement of the other."

In the late 19th century, the fields of veterinary and human medicine were intertwined. For example, some of the great physicians and biomedical scientists, such as William Osler and Theobald Smith, were closely associated with veterinary medicine's greatest leaders (James Law, Daniel Salmon, and Alexandre Liautard). In fact, it was not uncommon for deans and some faculty of veterinary colleges to be physicians or to hold both MD and DVM degrees.¹





Advancing One Health: Practical Tips for Veterinarians

Veterinarians can take a number of practical steps to promote One Health and forge collaborative bonds with their counterparts in human medicine:

- Encourage prospective veterinary students to attend undergraduate colleges and major in biological sciences in conjunction with premedical students in order to form lifelong personal and professional bonds that will facilitate mutual understanding of the health professions.
- Encourage veterinary colleges to accept MCAT (medical college admission test) scores as well as GRE (general record examination) scores to accommodate students who may wish to consider either field.
- Encourage exchange programs between veterinary and medical students by inviting medical students or family practice residents to visit your practice to observe the human–animal relationships that veterinarians encounter in clinical practice.
- Become informed about and engaged with human health care needs and issues, including those with no direct relevance to pets or other animals.
- Encourage physicians (as well as insurance companies and politicians) to understand and support the positive impact that pets play in enhancing human health.
- Become active with local and regional departments of health.
- Encourage and support innovative roles for appropriately selected animals in settings in which animals are known to positively enhance the living experience, such as retirement and assisted-living homes, hospitals and hospice care facilities, selected child care facilities, and prisons and detention centers, among others.
- Encourage responsible ownership of pets to minimize challenges such as noise (barking), indiscriminant soiling, property and home damage, and aggression/biting.
- Encourage collaborative work between MDs and DVMs in the management of any immuno-compromised person with pets.

education, research, government, and industry to promote comparative medicine in advancing human, animal, and ecosystem health. A permanent administrative home for the One Health Commission has recently been created at Iowa State University.

THE GOALS OF ONE HEALTH

Promoting Public Health

One of the primary goals of the One Health Commission is to advance the understanding,

prevention, and treatment of zoonotic disease. During the past few years, the increasing number, scope, and virulence of zoonotic pathogens; the more rapid speed with which these pathogens travel around the world; and the growing immunocompromised human population have compelled us to keep this issue at the forefront of the One Health movement.

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A growing body of research is continually documenting improvement in the physical, social, and mental health of people who share their homes and environments with pets.



Integrating Biomedical Research

A second primary intention of One Health is to exploit the strong correlation between human and animal health issues through biomedical research in such areas as oncology, nutrition, obesity, chemical and environmental risks, and aging. The field of comparative genomics, introduced barely a decade ago, provides us with the scientific tools to study diseases and conditions that have a genetic or inherited component, including certain cancers, endocrine and joint diseases, and even some degenerative and behavioral conditions. Because human and animal genomes have so much in common and because correlates for some human conditions are manifested in dogs and other animals, more rapid research advances can be realized through strong collaborative ties between veterinarians and physicians.

Exploiting "Zooeyia"

The importance of pets to human health is well established and cannot be overlooked when considering One Health. A growing body of research is continually documenting improvement in the physical, social, and mental health of people who share their homes and environments

with pets. This is a field in which veterinarians undoubtedly can have a major impact on human health. If these benefits can be proven to be tangible and measurable, we have the potential to decrease the cost of human health care and to improve the quality of life for both people and animals. The term *zooeyia* (the positive impact of pets on human health) represents a cogent way to express and build upon this important foundational concept.⁴

BACK TO THE FUTURE

The 21st century can and should become a "Back to the Future" moment for the One Health movement. A number of valuable resources are available for veterinarians to better understand One Health (see **One Health Resources**), and there are a host of constructive ways in which veterinarians can join the movement (see **Advancing One Health: Practical Tips for Veterinarians**, page 43). How marvelous would it be to celebrate the profession's 150th anniversary in 2013 with the entire veterinary community committing to a broader understanding of One Health for the betterment of all species?

ONE HEALTH RESOURCES

The following organizations offer informative resources to provide a broader understanding of the concept and goals of One Health:

American Veterinary Medical Association:

www.avma.org/onehealth

Centers for Disease Control and Prevention:

www.cdc.gov/onehealth

One Health Commission:

onehealthcommission.org

One Health Initiative:

onehealthinitiative.com

See Aids & Resources, back page, for references & suggested reading.