

## The modern working dog—a call for interdisciplinary collaboration

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On September 11, 2001, a guide dog named Roselle skillfully guided her blind partner, Michael Hingson, from his office in the World Trade Center down 78 flights of stairs after the building was struck by a plane that had been hijacked by terrorists. The team immediately demonstrated for the nation the power of the human-animal bond and what skilled working dogs like those trained at Guide Dogs for the Blind can do for humans. The story captured the public's attention nationally and internationally by being featured by a host of media sources, including "Larry King Live," "The Early Show," CNN, CBC, *New York Times Magazine*, and *National Geographic*. In each interview, Hingson emphasized the partnership and trust between him and his guide dog. He also praised the numerous professionals at Guide Dogs for the Blind. Among those professionals were veterinarians, guide dog instructors, nurses, psychologists, and social workers.

Guide dog schools provide an excellent example of how various allied professions can work together to further enhance the human-animal bond of a working team—whether the team contains service or assistance dogs, search and rescue dogs, patrol dogs, detection dogs, companion dogs, or other pets.

### Background

Man and woman's best friend may also be humans' oldest animal friend. New genetic information suggests that primitive humans may have begun to domesticate dogs 135,000 years ago. This is 10 times earlier than the oldest known fossil evidence of human-canine cohabitation, which dates from about 14,000 years ago.<sup>1</sup> Included in evidence are the 14,000-year-old remains of a man, woman, and a dog found near Oberkassel, Germany, making the dog the oldest recorded companion animal in history.<sup>2</sup> By the fourth millennium B.C., Egyptian rock and pottery drawings show hounds hunting with men, driving game into nets.<sup>3</sup> Dogs have been used in various working roles—farming, hunting, protection—for centuries, but in more recent times, animals have also come to help people in other remarkable ways. Guide dogs and service dogs have been providing essential tasks for their human partners for several decades. As such, these

dogs are now provided access to public facilities and transportation through the Americans With Disabilities Act (ADA). The first guide dog school in the United States was established on the East Coast in 1929 (The Seeing Eye, NJ). In 1942, the first guide dog school was established on the West Coast (Guide Dogs for the Blind, Calif) in anticipation of blinded veterans returning from World War II. Sergeant Leonard Foulk was the first veteran to receive a guide dog after being blinded in the battle of Attu.<sup>4</sup> Canine Companions for Independence (Santa Rosa, Calif) and the San Francisco Society for the Prevention of Cruelty to Animals Hearing Dog program are examples of excellent programs whereby dogs are trained to assist people with disabilities other than blindness. Dogs are also being used in expanded roles as assistance and therapy dogs, largely because of the efforts of the Delta Society (Renton, Wash). Thus, in the United States today, working dogs may include guide dogs, service dogs, assistance dogs, therapy dogs, or dogs that search airplanes for explosives, monitor our borders for the entry of illegal drugs and plants, or search for people who are lost in avalanches, the wilderness, and in natural or man-made disasters.

The working partnership between a person and dog has somehow evolved and magnified throughout the years, apparently because such a partnership benefits both the canine and human member of a team. The human-animal bond is at the center of the modern working dog team, with dogs providing much more than work for their humans partners. In fact, 94% of dog owners list companionship as a key benefit for the partnership.<sup>5</sup> The companionship that dogs provide has allowed them to become central working figures in promoting the physical and emotional health of humans.

### Supportive Investigational Studies

The potential benefits of the human-animal connection have been reported by many investigators. Dogs may guide, guard, detect, rescue, and patrol, thereby providing services to enhance our safety and to protect our very lives. Dogs also seem to enhance our overall physical and emotional health by their mere presence, ability to receive affection, and acceptance of many human frailties. In one study,<sup>6</sup> the one-year survival rate of patients after discharge from a coronary care unit was 94% for pet owners and 72% for those

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who did not own pets. The difference could not be explained on the basis of dog owners having increased activity, suggesting that some other protective factor was responsible. Dogs in particular seem to buffer humans from the impact of stressful life events.<sup>7</sup> Compared with other pet owners, dog owners spend more time with their animals and reported that their pets were more important to them. Dogs can be extremely important for elderly owners, providing an aging person with companionship and serving as an object of attachment and affection. In support of this concept was a study<sup>7</sup> of 938 Medicare enrollees in a health maintenance organization who were followed for one year. Reliance on physicians was less, and the ability to deal with stressful situations was seemingly improved for those enrollees who owned pets, suggesting that the pets were somehow associated with improved physical and emotional health.

Guide and service dogs also enhance the emotional health of their human partners. Allen and Blascovich<sup>8</sup> studied 48 individuals with severe and chronic ambulatory disabilities. Participants in the study were matched on age, sex, marital status, race, and the nature and severity of the disability to create 24 pairs. Within each pair, one member received a trained service dog while the other member remained on a waiting list for a dog. In addition to the work performed by service dogs (eg, opening and closing doors, turning switches off and on, pulling a person up from a sitting or lying down position), the study dogs also seemed to provide other crucial benefits to their human partners. For example, substantial improvement in self-esteem, internal locus of control, and psychologic well-being occurred within six months after study participants received service dogs. Community integration, attendance at school, or employment at work increased after the disabled people were matched with a service dog. In addition, the employment status of blind people (n = 385) who returned for a successor guide dog improved for 124 (32%) students, remained the same for 248 (65%) students, and was reduced for 13 (3%) students.<sup>9</sup> Thus, working dogs enhance the human experience in many wonderful and diverse ways.

### **The Bond Between Members of a Working Team**

The human-animal bond has been described as the mutually beneficial and dynamic relationship between people and other animals that is influenced by behaviors essential to the health and well-being of both. This includes, but is not limited to, emotional, psychologic, and physical interactions of people, other animals, and the environment. The veterinarian's role in the human-animal bond is to maximize the potentials of this relationship between people and other animals.<sup>10</sup> To optimize the human-animal bond and keep it intact, the collaborative efforts of many professions may be required. Consider the efforts required to train and maintain an effective search and rescue team following the attack on the World Trade Center.<sup>11</sup> As the four-legged heroes worked unimaginable feats, such as alerting their human partners to live and dead people, they were cared for by veterinarians and other profes-

sionals from local and national humane organizations. As important as it is to address physical ailments, it is equally important that the emotional needs of working dogs are considered. Working dogs are now expected to work in extremely difficult environments. For a guide dog, this could include safely guiding a blind person amidst increased traffic and complex street crossings in many urban settings. Animal behaviorists, professional dog trainers, veterinarians, and psychologists have the challenging role of addressing various factors that affect the emotional health of a working team. For example, if not addressed, an attack by an uncontrolled dog or exposure to other fearful situations may affect a working dog's ability to perform in the future. Similarly, it is important to address the emotional health of the human members. The emotional challenges are intense for those search and rescue teams who do not find living victims following natural or man-made disaster, regardless of the team's outstanding efforts and abilities.

### **Guide Dog Schools as a Model for Interdisciplinary Collaboration to Sustain Working Dog Teams**

The relationship between a blind person and guide dog has often been referred to as the gold standard for the human-animal bond, involving a 24/7 relationship whereby mobility is enhanced for the blind person and enjoyable work is performed by the guide dog. Guide dog schools provide an excellent example of how various allied health professions can work together to improve the quality of life for blind and visually impaired students and graduates and their canine partners.

The National Academies of Practice (NAP), established in 1981 in recognition of the need of interdisciplinary collaboration in healthcare, consists of 10 health care professions (dentistry, medicine, nursing, optometry, osteopathic medicine, pharmacy, podiatric medicine, psychology, social work, and veterinary medicine) dedicated to improving the health for all, through interdisciplinary education, research, policy and care. All 10 of the NAP professions work effectively together to maintain a working guide dog team.<sup>12</sup> Students who apply for guide dog training are required to meet certain criteria regarding legal blindness (optometry) and physical health (medicine, osteopathic medicine). Nurses (nursing) can accompany the instructor staff when students and dogs leave the campus for various training routes. A number of students training to use a guide dog are diabetic and may require medical assistance to monitor and maintain a normal blood glucose concentration.<sup>13</sup> Changes in exercise during training, dormitory diets that may vary from home diets, and stress from being away from family and friends can all contribute to fluctuations in insulin concentrations. Professional counselors (social work, psychology) can provide crucial services to incoming blind students who feel anxious or lonely during the training process. If a student is receiving a successor dog, there are often substantial issues to address concerning the retirement, illness, or death of a prior guide dog. Feelings of loss and bereavement may also need to be addressed for those who volunteer to raise a puppy

in their home for a guide dog school and then return the dog for formal guide dog instruction. Because minor foot injuries can be extremely serious for diabetic students, podiatrists (podiatric medicine) may be called on to monitor foot care and health. Students training with a guide dog often travel at a faster pace than when using a cane. Although the new pace may be exhilarating for the blind person, and longer distances can be traveled with a new independence, foot injuries may also increase unless proper footwear is provided. Podiatric physicians can also provide information on the proper footwear for professional guide dog trainers, a group of professionals who spend long hours on their feet when training guide dogs.

To ensure that there are no drug interactions that could result in an unsteady gait or balance problem, pharmacists (pharmacy) can provide exceedingly important information. It is crucial that students are alert as they learn how to work a new guide dog around traffic. Polypharmacy, recognized as an increasing problem among the elderly, can result in drug interactions that endanger the safety of the team during training. Although it is important that students continue to take all medications prescribed by their physicians, it is also important that a physician be notified if drugs are being taken that were not listed on the medical form during the application process. The nursing staff works closely with the student, the physician, and the pharmacist to ensure that students are receiving appropriate medications required for maintaining optimal health, but are not receiving combinations of drugs that could predispose to injury or illness during training.

Veterinarians (veterinary medicine) are crucial in protecting the health and welfare of the dogs, which can include sophisticated medical, surgical, and dental procedures (dentistry). Veterinarians assist in monitoring the genetic lines of breeding stock and in planning those matings that promote the physical and temperamental health of future guide dogs. They are also responsible for the overall health of all puppies and adult dogs in a guide dog program. Because puppies and dogs may be housed in large kennel complexes, veterinarians are responsible for controlling the spread on infectious diseases and in working closely with professional guide dog instructors to reduce kennel stress and optimize kennel enrichment. The health of each potential guide dog is crucial, not only for the dog but also for students, employees, or visitors who may be immunocompromised by various drugs (ie, chemotherapeutic drugs, immunosuppressive drugs) or disease (ie, human immunodeficiency virus infection). Staff veterinarians function to prevent zoonotic diseases through maintaining health in the dogs and in educating students and employees about practices that promote excellent hygiene.

In addition to allied health professionals, there are many other professionals who are essential in maintaining an effective working guide dog team. Many guide dog instructors spend three or more years in apprenticeship programs before becoming instructors. In California, an apprentice must have 22 units of class credit (assisting in the training of 22 blind people with guide dogs) before qualifying to become licensed in the

state. The state examination process consists of oral and written tests, coupled with a practical test. During the practical part of the examination, the apprentice is required to be blindfolded and work a dog he or she has trained in an unfamiliar location. Many guide dog schools also use orientation and mobility specialists in their programs, thereby helping students to become independent travelers and effective guide dog users. Orientation and mobility specialists can also offer valuable expertise in developing the curricula for training apprentice instructors and blind students. Other professionals that work at, or consult for, guide dog schools include dietitians, animal behaviorists, physical therapists, ergonomics specialists, geneticists, epidemiologists, and statisticians.

### **Transferring the Model to Other Human-Animal Teams**

Modern human-animal working teams will require the expertise of many professionals working in concert to create and sustain outstanding work, health, and welfare for each team member. For a dog to be a productive team member, the animal must truly enjoy the work and companionship of its human partner. This requires that a dog be well matched to the work and to the person. Dogs that may be too scent-distracted or noise-distracted to become reliable guide dogs may become excellent search-and-rescue or hearing dogs. Certain handlers may have increased success rates with specific breeds or types of dogs. Thus, the match may be as important as the individual members of the team may. It is also important that each working team is supported beyond the matching and training process. Extensive follow-up services are provided by some schools that train guide or service dog teams, with each team being visited on an annual basis or when specific issues arise. For sustaining the team's overall productivity for many years, services from various professionals may also be required for many years.

The model of interdisciplinary collaboration also holds promise for addressing the various aspects of creating a permanent human-animal bond for companion animal owners. According to data gathered by the National Council on Pet Population Study and Policy, 71 reasons were given by owners relinquishing pets to animal shelters.<sup>14</sup> Among those reasons cited were both animal and human factors. When grouped together, animal behavior problems accounted for the most common reason dogs were relinquished. Human factors included owners moving or having landlord issues or other personal problems (eg, divorce, pregnancy, birth of a child). Interdisciplinary teams can also play a crucial role in assessing these animal and human factors and in providing the necessary support and intervention for sustaining human-animal partnerships. As dogs continue to assume more roles in the contemporary human experience, whether for work or companionship, it becomes essential that professionals from many walks of life address all those issues that sustain the fabulous human-dog bond. A working team could be one like Michael Hingson and Roselle, each member literally working under incredible pressure to save the other's life. A working team could be one where a dog is retained in a family to give and receive innumerable

amounts of pleasure and improved health. In all of these, the veterinarian and many other professional partners play a crucial and ever-expanding role.

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