



The Role And Medical Management Of Military Working Dogs In Combat

James T. Giles III, DVM, MS, DACVS-SA
South Texas Veterinary Specialists
San Antonio, Texas

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Military working dogs (MWDs) are utilized in substantial and increasing numbers in current military operations and play a vital role in both protecting human lives and supporting military objectives. MWDs are trained to perform a variety of important roles, such as explosive, mine and narcotic detection, and patrol/attack work, and are even a component of therapy for service members with combat and operational stress, to name just a few. Similar to the human service members they serve, MWDs are susceptible to both combat and non-combat related injuries in the operational environment. Contract working dogs (CWDs), which are owned by a private entity and perform a Department of Defense mission, are also utilized extensively and typically perform a non-combat security mission. CWDs are vital and life-saving assets to current military operations and they may incur severe injuries in performing their duty. The need for effective MWD teams has increased significantly with the prevalence of improvised-explosive devices (IED) in recent years. In 2008, General David Petraeus aptly noted, "The capability that military working dogs bring to the fight cannot be replicated by man or machine. By all measures of performance, their yield outperforms any asset we have in our inventory. Our Army would be remiss if we failed to invest more in this incredibly valuable resource." At a time when IEDs represent one of the greatest threats to our service members, MWDs remain our greatest countermeasure to that threat. It

Key Points:

- ▶ Military working dogs (MWDs) injured in combat sustain significant injuries that require collaboration between veterinary and human providers in a "One Health" approach.
- ▶ The use of negative pressure wound therapy in canine combat wounds improved wound management and reduced morbidity during transport.
- ▶ Obtaining appropriate blood products for MWDs in an operational environment remains a significant challenge.
- ▶ Definitive care for working dogs injured in combat zones routinely spans multiple continents and a multitude of providers and agencies.

is important to remember that the purpose of the MWD is to save human lives and maintaining their health and proficiency is critical to military operations. Anytime an MWD team detects an explosive device before it detonates, that results in humans not being killed, maimed or injured.

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Issues such as non-veterinary provider care for MWDs, medical evacuation, damage control resuscitation and surgery, blood and plasma transfusion capability, canine post-traumatic stress syndrome and the use of negative pressure wound therapy for substantial wounds are all important to MWD healthcare during combat deployment.

Healthcare for the MWD

Healthcare for the MWD begins at the point of injury and continues as the MWD moves through the various echelons of care. MWD handlers are extensively trained in first aid procedures and are typically the first responder for their dogs. There are occasions when handlers are also casualties and other service members perform first aid for the MWD. There is a principle for pre-hospital care of the casualty in a combat environment called tactical combat casualty care (TC3). It is utilized for human

medical care in combat operations and prioritizes the most common life-threatening combat injuries and minimizes the healthcare provider’s and patient’s exposure to enemy forces. A similar scheme has been adopted for MWD pre-hospital care in combat operations called canine tactical combat casualty care. The acronym M2ARCH2 is followed: Muzzle for safety and control, Massive hemorrhage, Airway management, Respiratory distress, Circulatory failure, Hypothermia and Head injury.

While there is veterinary-specific healthcare for MWDs in most operational environments, there is not an MWD-specific means for medical evacuation (MEDEVAC). MWDs travel on the same MEDEVAC platforms in place for human casualties from the point of injury/illness to medical care. There is a higher priority placed upon the human casualties; however, MEDEVAC missions are performed routinely for injured MWDs and they receive similar care. The MWD is ideally transported to a veterinary facility, although the mission may necessitate they go to a

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human medical treatment facility for care. MWDs are often assessed and treated by several human healthcare providers (HCPs) in the pre-hospital phase. Specific MWD Clinical Practice Guidelines are in place to guide HCPs in emergent MWD care.

Veterinary care in a developed operational environment, such as Operation Enduring Freedom in Afghanistan, is provided by the Medical Detachment Veterinary Service Support (MDVSS). This organization has 5 veterinary service support teams (VSSTs) with 1 general practitioner veterinarian (64A) and 1 animal care specialist (68T) each, to provide Role 1 and Role 2 veterinary care. There is 1 veterinary medicine and surgery team (VMST) with a veterinary clinical specialist (64F) and 3 68Ts providing Role 1 through Role 3 veterinary care. Role 1 care is non-surgical treatment by a 68T or veterinarian for minor wounds, injuries/illnesses, preventive medicine, analgesia and emergency intervention for airway, hemorrhage, and fracture immobilization. Role 2 veterinary care includes veterinarian-directed resuscitation and stabilization and may include advanced trauma management, emergency medical procedures and emergency resuscitative surgery. Role 3 veterinary care includes consultation and referral for advanced veterinary diagnostic, therapeutic and surgical procedures.

This level of care requires a veterinary clinical specialist (64F) with training in surgery, internal medicine or critical care. In the combat theater, this facility is typically co-located with a Role 3 human hospital for equipment and technical support.

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Patients that will not return to duty in a short time or those with injuries that exceed in-theater capabilities are transported to a Role 3 veterinary hospital outside the combat theater via aeromedical evacuation (AE) on fixed-wing medical aircraft. CWDs are not eligible for AE; it is the responsibility of the owning entity to evacuate them from the theater. From Iraq and Afghanistan, MWDs traveled to Dog Center Europe (DCE), a robust Role 3 facility in Kaiserslautern, Germany, for definitive care.

Those requiring more substantial care or significant physical rehabilitation travel via AE to the only Role 4 facility within the US Army Veterinary Corps, the Department of Defense Military Working Dog Veterinary Service (DODMWDVS) in San Antonio, Texas.

Surgical Principles for MWDs

Similar surgical principles for combat injuries are followed for MWDs and human service members, in that definitive care for high-energy and contaminated wounds is often delayed until the patient is out of the combat theater. This protocol provides more time for assessment and treatment, a cleaner patient environment and

reduced morbidity. This is not the case for CWDs, as they often receive definitive care and recover in theater; evacuation out of theater is the responsibility of the owning entity and not the DOD. Transporting unstable and critical MWDs out of theater with limited veterinary personnel remains a challenge; consequently, MWDs often remain in theater until stable enough to travel several days with limited medical attendants.

Prior to 2011, there had been a significant issue with MWD wounds degrading during the 48-72 hour AE to Germany. Veterinary medical attendants did not travel with the MWD and wound care often did not occur at appropriate intervals. In July 2011, the use of negative pressure wound therapy (NPWT) during initial management and AE to Germany was incorporated into MWD wound management and represented a vast improvement in wound care. Additionally, veterinary or 68T attendants traveled with the MWD and handler if significant care was required. The implementation of NPWT to wounded MWDs created a substantial step forward in improving wound quality and reducing morbidity during aeromedical evacuation.

Management of MWD blood products differs greatly from the human counterpart in that there is no feasible means to ship MWD blood components into the operational theater. The military logistical chain exists for cold-chain shipping of human blood components, but animal blood products are not permitted to accompany those shipments. Private transport of canine blood components is too cost prohibitive to be a solution.

The organic capabilities of the MDVSS only support the collection and administration of fresh whole blood (FWB). FWB is suitable for many clinical conditions in the MWD; however, there are times when fresh frozen plasma (FFP) or platelets are a critical need. There are currently no shelf-stable canine blood components available that serve as a suitable substitute.

The FWB need has been reasonably met by the MDVSS instituting a walking blood bank and pre-screening donors to be available when the need for transfusion arises. The need for FFP was temporarily abated in OEF by use of plasma apheresis. In 2011, initial efforts began to develop an FFP collection and distribution program out of Kandahar Airfield (KAF). In 2012, the MDVSS obtained their own apheresis unit and it was designated for animal use only. The KAF apheresis team was instrumental in helping to establish this capability in training veterinary personnel to operate the unit. This step enabled the collection and storage of FFP at KAF and subsequent distribution to other veterinary sites throughout Afghanistan. Additionally, this apheresis unit was used to collect platelets when the clinical need occurred. This capability has been a tremendous asset for treating sick and injured MWDs in Afghanistan; however, it is an ad hoc capability that exists only in Afghanistan. It is not organic to the MDVSS for other operational environments.

MWDs are vital and life-saving assets to current military operations and they incur severe injuries in performing their duty. Providing

advanced surgical care for MWDs in an austere environment is challenging and requires a creative “One Health” approach, with substantial collaboration across veterinary and

human echelons of medical care. Veterinary units rely heavily upon the human hospitals for equipment and material support. The MWDs routinely receive advanced care on multiple

continents, from multiple providers of various disciplines, to restore them to health and hopefully a return to duty or retirement and adoption.