The veterinary trauma initiative: Why bother?

“Nothing has such power to broaden the mind as the ability to investigate systematically and truly all that comes under thy observation in life.”

–Marcus Aurelius

In this issue of the Journal, Ateca et al report the results of a retrospective single-center investigation describing a population of dogs sustaining bite wounds severe enough to warrant admission to an intensive care unit (ICU). As with most of the current literature available to help guide our clinical decision making, the authors cite the impact of the “euthanasia factor” in interpretation of their results and the limitations of a retrospective, single center study. While their study findings are certainly a welcome addition to the veterinary trauma literature, there remains an urgent need for multicenter, prospective clinical research in our patient populations to guide our clinical decision-making and directly and positively impact patient care. This concept is at the core of the development of the collaborative international trauma initiative that has resulted in multiple multicenter prospective studies and the creation of the Veterinary Committee on Trauma (VetCOT) with a vision to:

Create a network of lead hospitals that seed development of trauma systems. These hospitals will work collaboratively to define high standards of care and disseminate information that improves trauma patient management efficiency and outcome. Centers will contribute to a trauma registry that allows for continued advancement of trauma patient care.

In our July 2013 Editorial, some of the potential advantages to developing a veterinary trauma center network were described. Additionally, benefits that have been realized for trauma patients in human medicine, and the pathway to the current human trauma system, were highlighted. While a priority for improving trauma patient care is certainly shared by both the human and veterinary initiatives, through the VetCOT, the veterinary-specific goals have been identified:

1. Enhancement of trauma patient care (eg, improved survival, reduction of comorbidities, and development of protocols to improve efficiency and outcomes).
2. Enhancement and promotion of research collaborations (eg, development of evidence-based medicine protocols; evaluation of minimally invasive, cost-effective interventions; translational medical opportunities).
3. Expansion and formalization of education on veterinary trauma.
4. Enhancement of the visibility of veterinary specialty colleges.

During the January 2010 Multi-Disciplinary Review/Post Graduate Review (MDR/PGR) meeting in San Diego, CA, a group of veterinary emergency/critical care specialists, human trauma surgeons and translational medicine scientists (Spontaneous Trauma in Animals Team, STAT) met to discuss the possibility of utilizing naturally occurring canine trauma as a model to improve both veterinary and human trauma patient care. Over the ensuing months, multiple grants were submitted by the group; while not funded, feedback from the large human health granting agencies were largely supportive of the concept, but questioned the veterinary communities’ ability to collaborate in a large-scale, multicenter way to garner large enough data repositories to draw meaningful conclusions.

Looking to rise to the challenge, the group sent an invitation via the DACVECC list in December 2010 to recruit others to join the conversation to answer the following questions: What are some universal guidelines for clinical animal trauma research that best position clinical studies for translational and comparative research purposes in addition to application to the species of study? and What does a veterinary trauma center look like [using the American College of Surgeon’s (ACS) guidelines as a model]? Respondents to the invitation, representing university and private-based hospitals from Australia, Canada, and all across the United States, discussed a path forward and agreed that the development of a multisite “laboratory” where such clinical studies would be performed would be the first step. As a result, over the next 18 months, the first edition of the Guidelines for Resources for Veterinary Trauma Centers was created (https://sites.google.com/a/umn.edu/vetcot/home) under the leadership of Drs. Claire Sharp and Kelly Hall.

After an update of progress was presented during IVECCS 2011, the group was invited to continue their efforts as an ad hoc committee within ACVECC, and the VetCOT was formally created. The first official meeting of the VetCOT occurred during the 2012 MDR/PGR
meeting in Houston, TX, with the creation of subcommittees (Guidelines and Verification, Education, Registry, and Communication) to lead efforts toward achieving the VetCOT’s stated goals (the Prehospital subcommittee has subsequently been added). Input from the broader community was sought during a presentation at the IVECCS that fall (2012), and invitation for feedback on the Guidelines and a call for the first wave of VTCs sent to the DACVECC list that September.

After a blinded review of data submitted electronically by respondents, the first 9 VTCs were identified in February 2013 based on likelihood to be a Level I VTC. This group of 5 university-based and 4 private-practice based hospitals was “labeled” as provisional VTCs, and all committed to:

1. Development and implementation of a process for documenting all trauma cases.
2. Documentation of resources as described in the Guidelines, including a performance improvement program (PIP).
3. Commitment to conference calls attended by a representative from the trauma team.
4. Feedback and collaboration with the Animal Trauma Registry and Education subcommittees finalizing details for a national trauma registry and launch of a Veterinary Advanced Trauma Life Support (VATLS) course (Lead: Dr. Tony Mann).

The immediate priorities for each VTC involved creation of a multidisciplinary internal trauma committee to guide the PIP, and development of site-specific mechanisms for identifying all trauma cases presenting to their facility. In September 2013, all VTCs started entering prospectively obtained data on their trauma cases into the veterinary trauma registry (REDCap). In the first year of data collection, over 3,000 cases have been entered into the registry. Additional questions regarding prehospital care were added in July 2014 to help inform the efforts of the Prehospital subcommittee (Lead: Dr. Rita Hanel) to create “Best Practice” guidelines that can be shared in an effort to improve prehospital care for both working and companion small animals. Dr. Marie Holowaychuk (Registry subcommittee lead) has been leading the effort to generate guidelines for data use from the registry.

The advantage to this large database is the ability to further explore findings such as those in the Ateca et al study. For example, of the >3,000 cases to date in the registry, approximately 40 have died (versus being euthanized). By doubling the size of the VTC network over the next 12 months, it is anticipated that there will be >10,000 cases in the registry by September 2015. With such a large data pool, it may be possible to start teasing out data minimizing the “euthanasia” factor. The Ateca et al study also found that the time from admission to anesthesia resulted in longer ICU duration, presumably increasing morbidity and cost to the owner. The network of VTCs is the perfect infrastructure with which to evaluate the insertion of goal directed interventions and processes to evaluate if there is a resultant improvement in patient morbidity and outcome, similar to findings in human emergency and critical care.

In June 2014, the 9 provisional VTCs submitted documentation for verification to the VetCOT. All VTCs were verified as either Level I or II based on resources documented in their application. A call for applications to join the VTC network was distributed in July, and additional hospitals were identified as provisional VTCs based on a blinded review of their application and likelihood to be verified as a Level I or II VTC. The committee anticipates expansion to 40–50 VTCs in the next 5 years with a cycle every 6 months as logistics and process continue to be created and modified. Reverification of VTCs will be every 2 years. While the process is still being developed for 2016, documentation of performance improvement program initiatives, trauma education involvement, participation in the Registry, VECCS certification, and caseload documentation are expected to be included.

As with any large effort, there are unintended consequences that arise. The decision to start with small numbers of VTCs and grow the network on an annual basis was based on the need to “beta-test” processes both within and between the VTCs. While well-intended, this decision has resulted in concerns regarding lack of equal opportunities for well-researched practices to join and participate in the network in a timely manner. As a result, the ACVECC Regents have asked the VetCOT to identify additional VTCs on a biannual basis through 2016, growing the network more rapidly. Although the process to verify provisional VTCs as Level I or II (1 year after identification) will continue, the VTC’s verified level will be tracked internally by the VetCOT committee (and available on the website) only. The target is to revisit the Guidelines in 2016 (Leads: Drs. Claire Sharp, Armelle DeLaforcade), and revise based on experiences, additional trauma literature, and data from the growing registry. Hospitals not meeting Level I or II requirements will not be identified, and when submitting verification materials 1 year later, hospitals that do not meet Level I or II criteria as outlined in the current Guidelines, will have their VTC status suspended.

Initial efforts by the VetCOT to create a multidisciplinary approach included recruitment of double-boarded critical care specialists to the VetCOT and multispecialty teams working together at the local level (VTCs). Because the initiative was in its infancy, this seemed the best initial approach. However, with
the trauma initiative gaining traction with a year of experience from the first 9 VTCs, and subsequent identification of an additional wave of centers, the VetCOT has started actively pursuing direct involvement with allied specialty colleges.

Many colleagues have put in an enormous amount of volunteer time to get the trauma initiatives to where they are to date—much has been done; but there is much yet to do. If you are interested in participating in the effort, please contact Kelly Hall (wilke022@umn.edu) or a subcommittee lead to get involved!

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Kelly Hall, DVM, MS, DACVECC
VetCOT Communications Subcommittee Chair
Adjunct Clinical Professor
University of Minnesota
St Paul, MN

Claire Sharp, BSc, BVM(Hons), MS, DACVECC
VetCOT Guidelines/Verification Subcommittee Co-Chair
Cummings School of Veterinary Medicine
Tufts University
North Grafton, MA

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Footnote

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References