

## TRAUMA CENTER ACCREDITATION IN CANADA—A PROPOSAL: 1992 PRESIDENTIAL ADDRESS, TRAUMA ASSOCIATION OF CANADA

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IT IS AN HONOR and a privilege to be the President of the Trauma Association of Canada and a significant responsibility to give the Presidential Address. My topic today is "Trauma Center Accreditation in Canada: A Proposal." First, the disclaimer: although I have been involved in the care of patients with serious injuries since 1970 when the clinical portion of my neurosurgical training began and have been a cog in the machine of an organized trauma facility since 1979, when I transferred my practice to Sunnybrook Health Science Centre, I have busied myself with the nuts and bolts of rendering neurosurgical care and have never been professionally involved in the organization of trauma care delivery beyond the bounds of my hospital. As a result, what follows is my personal view: the view of a consumer rather than that of a provider. Inevitably, the title "Presidential Address" lends weight and emphasis to my remarks but the final decision regarding policy for this Association is still the responsibility of the Trauma Centre Accreditation Committee, which answers to all of you, not to me. My motivation in choosing this topic arises from my perception that the times are favorable for the implementation of an accreditation system for trauma centers in this country and from my awareness that to present arcane information regarding neurosurgical rituals to this or any audience would likely do less to improve patient care than a topic of more general interest.

In 1987, Peter Roy, a member of our Association, published a very important review entitled "The value of trauma centres: A methodologic review."<sup>1</sup> He began his discussion of trauma centers by writing, "Intuitively, one expects the results will be improved because of the immediate availability of rapid transportation, highly trained field personnel and emergency physicians, modern diagnostic tools and experienced trauma surgeons. Who could possibly disagree? Yet, when one searches for objective evidence in support of this concept, the data are surprisingly lacking." He went on to trace the meth-

ods that have been applied to the study of outcome for patients suffering severe injuries. A common starting point for trauma outcome audits is the review of a series of deaths, trying to determine from the information available whether they were preventable or not and searching in the record for mistakes in diagnosis and treatment that one can avoid in the future. Centers or systems can be compared with respect to the quality of care they render to trauma patients by the percentage of preventable deaths correcting for injury severity using one index or another.

The problem is that when deaths only are considered one produces, in effect, a case control study where the attribute for selection is death but where there is no group for comparison since, without a comprehensive registry, the survivors are not catalogued. I will not discuss the relative merits of the various studies that Doctor Roy reviewed but commend his article to you.

In May 1992, Kane and his collaborators described the "Impact of the Los Angeles County Trauma System on the survival of seriously injured patients"<sup>2</sup> in the *Journal of Trauma*. They compared the survival of 658 seriously injured patients treated in L.A. County in 1982 before the implementation of a trauma system with the outcome for 766 patients treated in the same group of hospitals in 1984 after the trauma system was in place. In the group as a whole there was no difference in survival of comparable patients for the two study periods. These authors were able to tease out a statistically significant difference in a subgroup composed of "motor vehicle collision victims with an ISS between 35 and 49 who arrived at the hospital with a pulse." They graphed survival rates by ISS and concluded "that the differential in survival might extend from an ISS of 26 to 50" ( $p = 0.015$ ).

One may speculate that the group as a whole failed to benefit from trauma system implementation because there were too many patients who could be expected to die in any case or others who were sufficiently stable to live despite inefficient management. The fact is that many prehospital care variables that one might expect to have improved with a trauma system, such as response time, scene time, transport time and the total field time, were already quite good before the institution of the system and did not change.

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Readers of a recent publication<sup>3</sup> in the *Journal of Trauma* that compares death rates from trauma in North Carolina counties with and without trauma centers are cautioned by the discussants, one of whom was Doctor David Wesson, a former president of the TAC, from concluding that trauma centers are effective because the counties without trauma units tended to be rural, where life-threatening injuries are more common, and those with trauma units were more likely to be urban.

In Ontario, where trauma registry data are beginning to accrue, severe injuries are also prevalent in rural areas. In provinces without Ontario's urban concentrations, the problem of severe injury in remote places and prolonged transport will be even worse.

Why am I placing so much emphasis on this issue? I believe that since the trauma system model as described in the American College of Surgeons' Committee on Trauma booklet *Resources for Optimal Care of the Injured Patient*<sup>4</sup> has not produced a dramatic improvement in the outcome for trauma patients, we are not constrained to emulate it, and are free to propose different criteria for accreditation.

I believe that current conditions are right for an initiative on the part of the Trauma Association of Canada in the area of trauma center accreditation. My personal involvement began when I received the recommendations of a coroner's jury that examined the death of a motorcyclist who died of massive chest injuries. Members of our Association were involved in the inquest as expert witnesses. I will not describe the case further except to say that the nature of his injuries was such that he was beyond saving from the outset and his death was judged to be inevitable. The jury did, however, make a series of recommendations<sup>5</sup> that were widely disseminated beyond provincial boundaries and five of which might properly be the work of our Association.

1. That guidelines for the operation of trauma units, training and composition of trauma teams, requirements for trauma team leaders, and methods of quality assurance be adopted for the Province of Ontario.

2. That hospitals be designated trauma units under such guidelines.

3. That a regulatory body be designated to ensure that trauma units conform to the guidelines, or have in place compensating mechanisms.

4. That such regulatory body carry out site visits.

5. That the lead hospitals in Ontario's trauma system establish a formal association that would include, as members, directors of all Trauma Centres in Ontario. The members of this Association would be consulting with each other, as well as other experts, on new developments in the field, and for the purpose of developing expertise and advancement in the following areas:

- a. Trauma prevention;
- b. Prehospital trauma care;
- c. Interhospital transfers;
- d. Trauma resuscitation;

- e. Trauma surgery;
- f. Intensive and/or critical care of trauma;
- g. Trauma rehabilitation and follow-up.

Target date: December 31, 1992.

Note the target date. The Ministry of Health of Ontario recently sent a favorable response indicating a willingness to accept direction from appropriate groups in the implementation of these five and many other recommendations. I suspect that there is a widespread desire among health ministries in Canada to adopt policies that will improve the quality of care and incidentally reduce health costs.

The Accreditation Committee of the Trauma Association of Canada is chaired by Doctor Charles Burns of Winnipeg, the first president of our Association and a tireless worker for the improvement of trauma care through the implementation of trauma systems in Canada. His distinguished committee consists of Léon Don-tigny, Stewart Hamilton, Peter Lane, David Mulder, Judith Vestrup, and David Wesson.

The booklet *Resources for Optimal Care of the Injured Patient*<sup>4</sup> is an excellent document that provides a wealth of information that I will not begin to duplicate here. I would like, however, to consider some of the criteria for hospital organization required to qualify as level I, II, or III trauma centers. In scanning the list it is immediately apparent that the same criteria that are considered essential to quality as a level I trauma center are also desirable for level II centers. On the other hand, level III centers are distinct. In short, the booklet really only describes two types of hospitals, those that have or should have a lot of resources that might be devoted to trauma and those that do not. The major distinction, a somewhat subtle one, in my view, between levels I and II is perhaps a greater academic commitment in level I. As far as patient care is concerned, I would expect no difference in quality between levels I and II.

Our accreditation committee has gone in the direction of greater specificity, defining in one report, six classes of trauma center. I understand the desire to produce a system that accounts for all the possibilities, but my personal preference would be to combine, for the purposes of accreditation, units engaged in similar work even though the institutions may differ greatly in size, location, distance from other hospitals, and university affiliation.

My proposal is to accredit only two levels of trauma units: those that provide definitive trauma care and those that resuscitate and refer or treat simple or single-system cases only. In the smallest hospitals, which seem to be disappearing in Canada as their maintenance becomes less cost effective, the emphasis should be placed on the certification of individuals and perhaps the provision of advice to those people so that they can advise their institutions on how best to equip emergency rooms for the type of resuscitation they are likely to undertake.

In the optimal Care booklet,<sup>4</sup> the American College of

Surgeons proposed certain essential features for the various levels. For my definitive trauma care hospitals, I consider it essential that there be an organized trauma service with a director and an explicit organizational map outlining reporting relationships and responsibilities. This might be structured by consensus within an institution or a model (one is available at Sunnybrook) might be examined and modified or adopted.

A full complement of services with certain specialist categories constantly in house seem necessary.

What constitutes a full complement of services? It is hard to envisage providing definitive trauma care without neurosurgery. On the other hand, Sunnybrook provided good quality trauma care without cardiovascular surgery and since the advent of that service at our hospital, to the best of my knowledge, the cardiovascular surgeons have slumbered undisturbed through hectic summer weekend nights. There is no question that the plastic surgery service at our hospital contributes greatly to the care of our trauma patients by virtue of its expertise in maxillofacial surgery but they also receive patients referred from other centers, who, with the exception of definitive facial fracture repair, have received exemplary trauma care. Saint Michael's Hospital in Toronto is well known for its excellent trauma unit but prefers to refer patients with spinal cord injuries elsewhere. I contend, therefore, that not every hospital accredited to provide definitive care need have every service and that specialization among accredited trauma centers be allowed. The minimal service set, to paraphrase the registry committee's minimal data set, could likely be established by the committee.

What services must absolutely be on 24-hour call in house? My minimal service set would include emergency medicine, anesthesia, and general surgery to cover resuscitation and the initiation of definitive care while additional services on prompt call-back are assembled.<sup>6</sup> This skeleton service to begin would serve for patients admitted directly, who sometimes arrive with little advance warning, what at Sunnybrook we call off-the-street traumas, but a complete trauma team could be assembled in advance for patients referred from other institutions. To require the full range of in-house services specified by the American College of Surgeons' document would limit trauma center accreditation to some teaching hospitals only. Such a system would not adequately cover our country, where many regions have no medical school. Furthermore, as yet unpublished data, acquired in a survey of Ontario Surgeons by Doctor Murray Girotti, suggests that with the capping of physicians' incomes, some specialty groups will become increasingly reluctant to see trauma patients (Personal communication, 1992). The imposition of in-house call on such physicians would likely make it impossible to meet unrealistic trauma accreditation staffing guidelines. By careful record keeping, we will likely be able to determine whether the minimal staffing set impairs the quality of care. I expect that it will not. I would much rather be "inclusive" and

begin with more hospitals accredited and increase the requirements as required, than have to few hospitals in the system to create organized referral patterns.

The ACS document<sup>4</sup> lists a number of attributes an accredited level I or II hospital must have from which I have abstracted those that seem most important. They include an operating room immediately available 24 hours a day and an intensive care unit with a designated director and constant in-house medical staff. Their document specifies surgeons for these positions but in Canada, the pattern in many hospitals has been anesthetists or other nonsurgical specialists.

An outreach program to link the definitive care hospitals to the hospitals that resuscitate and refer is an absolute necessity but need not be strictly a hospital function. In Toronto, the trauma and critical care access program<sup>7</sup> is housed at Sunnybrook but is a shared resource funded by the Ontario Ministry of Health to direct patients from referral hospitals to definitive care hospitals according to the choice of the referring doctor and the availability of resources at the definitive care hospitals. This facility might serve as a model for other regions.

The public education function prescribed for definitive care hospitals by the ACS document<sup>4</sup> is already subserved by several agencies in this country and might be taken up to a greater extent by our Association.

I expect that hospitals that resuscitate only will fall into two classes: large hospitals with other interests that choose not to provide definitive trauma care, and smaller hospitals without the resources to. With increasingly tight provincial budgets for health care, the elimination of duplication is already occurring. Unless specific funding for trauma care is provided, even large institutions will prefer to concentrate their resources in other areas if trauma care is not a hospital mission. These hospitals should nevertheless have specified resources for resuscitation and a preplanned referral system to direct patients to hospitals providing definitive care. They should be accredited by the same process as the definitive care hospitals but to an appropriate standard.

With respect to registry activities, hospitals with a major interest in trauma already have their own stand-alone computer-based registries and dedicated personnel for data gathering. As you have seen this morning at the display of computerized registries organized by the Registry Committee of the TAC, the systems are becoming progressively more user friendly, and the cost of these systems will likely fall as development and distribution proceed. Definite trauma care hospitals must be equipped and staffed so as to collect a more complete data and participate as well in a universally applied program organized through the Hospital Medical Records Institute (HMRI).

Hospitals that resuscitate and refer trauma cases need not have a separate stand-alone registry but for accreditation must participate in the collection of a minimal data set through HMRI. It is well known that there are

coding problems in this system but these might be addressed by the inspection teams that would tour the hospitals seeking accreditation since they could devote some of their inspection time to the issue of record keeping. At Sunnybrook we have developed a system of trauma data entry forms<sup>8,9</sup> that simplify and improve the recording of information about trauma victims in the first place and would likely lead to better data encoding in smaller centers since the information that they contain is always in the same abbreviated format, obviating the search through a narrative text for data that may be written in many different ways.

If we are to evaluate prevention programs, as suggested by Doctor Barry McLellan in his Fraser Gurd Lecture,<sup>10</sup> accurate broad-based registry data are essential. If we are to determine if any programs are effective or learn whether new interventions are helpful, then accurate record keeping is indispensable.

Peter Roy<sup>1</sup> concluded that "In large cities the designation of trauma centres certainly makes economic and administrative sense, but in Canada, a great deal of trauma occurs away from urban centres. I would suggest that the best value for money is to teach emergency physicians the basics of resuscitation and evaluation through such programs as the Advanced Trauma Life Support Course,<sup>11</sup> and from ongoing education of community general surgeons who know when and how to operate."

We were told yesterday by O'Keefe et al.<sup>12</sup> that preventable deaths occur in rural Alberta because of resuscitation errors. It would appear that there is still a need for further education of the people giving first-responder care. Our Association proposed at yesterday's annual business meeting to pursue a continuing education program in conjunction with the Canadian Association of Emergency Physicians. It seems appropriate to pour our energy into the personnel in the smallest centers rather than into the institutions themselves. The poster by Doctor Jameel Ali<sup>13</sup> and his colleagues in the clinical laboratory of Trinidad-Tobago confirms the wisdom of this approach.

The ACS optimal care booklet<sup>4</sup> presents in great detail schemes for triage decision making. I will not review them in detail but these or similar guidelines should appear in an accreditation document as they are in effect the operational description of how a trauma system actually functions.

One final consideration is who does the accreditation? If the Trauma Association of Canada does it directly in the manner of the American College of Surgeons, it certainly enhances the stature of our organization but I question whether our Association has the resources to undertake such a process. My personal preference would be to provide direction to the Canadian Council on Health Facilities Accreditation,<sup>14</sup> an organization that, since 1958, has provided voluntary accreditation to an

increasing number of health care facilities. The Council researches and develops standards for accreditation and determines their relation to quality of care. They verify the degree of compliance with standards and, when deficiencies occur, make recommendations for their correction. They provide counselling to health care facilities. They monitor and analyze trends of noncompliance and provide educational programs on accreditation to client health care organizations, to groups and individuals within the health care professions, and to the public. In short, they have the experience and expertise in the mechanics of accreditation that our group could not likely quickly acquire. We have the expertise to create appropriate standards. I have already been contacted by them and they await direction from our Accreditation Committee. We might specify that an initial inspection of a health care facility that wishes to be accredited for trauma care include among its inspection team, a member of the Trauma Association of Canada.

How to proceed? I invite membership comment now. The advisory committee composed of the current executive and the past presidents will have the opportunity to discuss this proposal later today. I suggest that the Accreditation Committee meet a last time before the end of the year and that the executive committee finalize a policy at its winter meeting in February 1993.

Thank you for your attention.

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