Thank you for asking me to talk on the issue of teamwork at this conference on trauma care. Although I am experienced with health care teams in many settings, my experience in trauma is limited and the ideas, which are sketched out in this talk, are offered only as food for thought about this interesting and important topic.

Trauma care is an important context in which to think about teamwork for several reasons. The rate of occurrence of traumatic injury appears epidemic in proportion (Singh et al., 1992) and the complex bio-psychosocial and functional problems that it produces demand the collaborative efforts of health professionals from many backgrounds. Accordingly, "the trauma team approach is an implicit concept in advanced trauma management" (Moore et al., 1992) and regional and national guidelines are increasingly sought (Schwartz, 1993; Deane et al. 1990).

In addition, there are features of trauma care that make it a doubly rich area for studying health care teamwork. First, the process of trauma care lends itself to several distinct teamwork styles ranging from "classic multi-professional" to "dynamic inter-professional" teamwork. Second, in this era of customer-focused care, teams are accountable to their customers and in trauma care the definition of "the customer" changes as the process unfolds. And, third, because trauma care involves such a diversity of health care professionals including emergency response, nursing, medical, surgical, social, psychological, speech, and rehabilitation professionals, as well as orthopedic, neuro, general, and plastic surgery groups there is a high likelihood that "teams" exist within "teams". And with such diversity, "inter-teamwork" becomes an essential factor in the trauma care process. It is these features of trauma care teamwork that will be examined today.

**Changing Styles of Teamwork**

Current models distinguish several styles of health care teamwork and a prescriptive approach is emerging that links health care outcomes
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to congruence between customers needs and teamwork style. Fried, Leatt et al. (1988) for example, describes five styles of teamwork (Sequential teamwork, classic and dynamic multiprofessional teamwork, and interprofessional teamwork) whose emergence in health care has accompanied the specialization of medicine and the growth of the allied health professions since the early years of the century (Ryan, 1993).

At the turn of the century a general practitioner with medical tools in a small black bag would attend to the myriad of problems that his patients would present. The emphasis was on care and cures were scarce. Scientific advances in curative medicine ushered in the era of medical specialists with the capacity to cure disease. And the term "sequential teamwork" aptly describes the process of transferring patients from specialist to specialist as each cured her/his particular set of diseases. The medical literature of the day reveals that general practitioners were alarmed that their future in medicine might disappear.

But the specialists were unable to perform the broad range of caring services previously provided by the general practitioners and in the 1920's the "classic multiprofessional" team emerged always comprised of nurses but also social workers (then often called almoners), rehabilitation workers, chemists, and psychologists hierarchically organized with fixed and defined roles. The number of distinct health practitioners diversified each claiming the right to a fixed and defined role on the multiprofessional team, until, by the 1960's, the idea of the "dynamic multiprofessional team" emerged in which fixed roles continued to be hierarchically organized but which allowed the appropriate mix of caregivers to convene around the specific needs of each individual patient.

The 1970's and 80's saw the professionalization of the allied health practitioners with their own regulatory bodies and capacity for independent practise. These brought increased confidence and the promise of reduction of interprofessional tension over right of place and the capacity to blur role boundaries and work together more seamlessly in serving the needs of their patients. This, together with the capacity for emergent leadership is the characteristic of an interprofessional team.

**Stage 1 - Classic multiprofessional teamwork in trauma care**

When the patient reaches the hospital based trauma team she/he is met by a trauma team comprised of a medical team leader and nursing staff. The work of the team is to conduct a process of assessment to identify which surgical teams must be involved as the patient is readied for the operating theatres. The work is fast and intense and in order to accomplish this task clear leadership and defined roles are essential. The team leader directs and in the "not so old days" one nurse might manage the assessment of the left side of the body,
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Stage 2 - Dynamic multiprofessional teamwork

This classic multiprofessional team enables the team leader to decide which surgical groups need to be involved. Depending upon patients needs, the team expands to include anesthesiologists, neuro, general, plastic, and orthopedic surgeons as well as trauma team leader and nursing professionals. The patient is transferred from the resuscitation room to the operating theatres. Professionals selected for involvement decide the timing of their piece of the reconstruction and the ordered roles and rituals of the surgical speciality teams take their course. The combination of hierarchical structure and ordered and fixed roles make the team multiprofessional, while the convening of the appropriate mix of surgical specialists from the available cadre of surgical specialities create the dynamic elements of the "Dynamic Multiprofessional" team.

Surgery is completed and with skill and luck the reconstructed person is transferred to a critical care floor. At this point the cadre of involved health professionals expands to include rehabilitation staff and social workers. Again, the drawing together of an appropriate mix of health professionals to meet the patient’s needs though in roles which continue to be fixed indicates the functioning of a broader "Dynamic Multiprofessional" team.

Stage 3 - Dynamic interprofessional teamwork

Within a few days the reconstructed person is transferred to a "stepdown unit" where he is medically monitored, actively assessed for functional capacity and rehabilitation potential, discharge planned, and helped to cope with her/his new status. The importance of non-medical decision-making and treatments increase in this context. Leadership of the team may change, the influence of team-members will be redistributed reflecting the patient’s needs, roles may be more flexible and role boundaries may blur. The practise of counselling, for example, may be distributed among appropriately skilled team-members regardless of discipline. Skills at different levels of cognitive or functional screening may be distributed across the team and, not infrequently, a patient or family member will develop a special "bond" with a team-member whose role and influence change accordingly. This pattern of convening an appropriate mix of team members, though with emergent leadership, role flexibility, and role blurring, characterize the Dynamic Interprofessional Team.

The Customer Focus Also Changes
These changes in the structure of teams working with the trauma patient are paralleled by a changing definition of the customer. Remember in this era of increased accountability and customer focus the definition of customer can be quite broad and in addition to the patient, include others from family members to insurance companies who have a stake in the outcomes of the patients care. During the process of trauma care the definition of customer changes as illustrated in Figure 3. At the point of admission, the classic multiprofessional trauma team is focused on the patient who may at the outset be literally "in pieces". As the pieces are reconstructed, the family arrives at the trauma centre and is now a customer. As discharge approaches the definition of customer often broadens yet again to include representatives of rehabilitation facilities, the patients workplace, an insurance insurance company, and community caregivers.

In addition to the unique skill sets of health professionals working in trauma care, the changing styles of teamwork which emerge as the patient becomes reconstructed and ready for rehabilitation makes trauma care a particularly interesting area for studying teamwork.

**Maintaining High Performance Trauma Teams**

We know that "just putting people together to work does not necessarily create effective teamwork". And in the complex environment of trauma care teamwork there are many opportunities for extraordinary team performance and team strain.

Health care teams seldom find the time to routinely review the quality of its teamwork. This is unfortunate because several tools are available that might be helpful. I have developed the Dimensions of Teamwork Survey a psychometrically sound multidimensional teamwork especially for use by health care teams. The Dimensions of Teamwork Survey comprises 7 dimensions: 1) Customer and Inter-teamwork, 2) Team member strengths and skills, 3) Communication and conflict management, 4) Roles and interdependence, 5) Clarity of team goals, 6) Decision-making and leadership, and 7) Organizational support. Annual or semi-annual use of this survey combined with survey feedback workshops inevitably reveal challenges in one or more of these dimensions even for high performing teams that can be a focus for quality improvement.

Systematic observation of team member behavior during team meetings can also provide useful information for maintaining high levels of performance and satisfaction on teams. The Informal Roles Checklist provides a simple tool for gathering information in this regard. In the Informal Roles Checklist two categories of informal roles are identified. Task oriented roles focus on the roles necessary for getting the work of the meeting done and include such items as initiating discussion, giving opinion, reality testing and etc. Maintenance oriented roles focus on the manner in which the work gets done and includes such items as harmonizing, encouraging and gatekeeping. High levels of 'role distribution' and 'role
flexibility’ characterize high performance teams in which all roles are evident and anyone might take on any role. Typically ‘maintenance roles’ are not evident on health care teams with roles routinely played by the same individual(s). Reflection on audits of informal roles on teams serve also serve as a focus for teamwork quality improvement.

Inter-teamwork and trauma care

Sometimes the problems which teams encounter seem widespread. Most teams, for example, find that communication and conflict management is a difficult issue. For some teams, however, the type of work they perform presents unique teamwork challenges. Inter-teamwork may be the special challenge for trauma teams.

When is attention to inter-teamwork essential? Grey (1985) describes five characteristics of situations requiring inter-teamwork: 1) When issues are indivisible and bigger than a single team acting alone can resolve, 2) When classical or more competitive approaches do not work, 3) When environments are turbulent, 4) When resources are constrained, and 5) When teams must collaborate across organizational boundaries. Arguably, all five of these characteristics obtain in trauma care.

Where is inter-team strain likely to occur? "Teams within teams" are a frequent unrecognized source of inter-team strain (Cott, 1994). Typically this occurs when one professional group has many members on a team relative to others. In trauma, surgeons and nurses might have different perspectives on "the team" than the more heterogenous group of other professionals. Within the surgical group, speciality teams are evident and inter-team strain is likely. If power is allocated disproportionately amongst "teams within teams" inter-team strain will result. Inter-team strain is not uncommon at the interface of human service and management teams, "case-managed" and "episode of illness" teams, general practise and speciality teams, and at the interface of culturally diverse teams. Finally, inter-team strain is common at the interface of hospital and community teams, or lay and professional teams. The teamwork aphorism that "simply putting people together does not make a team" can be restated "simply putting teams together does not make effective inter-teamwork".

How to think constructively about inter-teamwork issues? Many health professionals familiar with the teamwork literature will recognize the importance of informal roles, and their presence and distribution among team members. Ancona & Caldwell (1988) identify several external or boundary-spanning functions on teams. Expectation dynamics (Tjosvold, 1988) are important determinents of inter-team strain: Do interfaced teams expect that everyone will win, that resources will be distributed equally, and that the burden or work will be shared? Understanding each teams "cognitive map" is a significant factor in managing inter-team strain (Clarke, 1991). Important dimensions here include teams views of the problem (e.g. single organ vs whole person), perceptions of time (e.g. surgical
moment vs process of trauma), geographies of work (e.g. operating room/stepdown unit/ home), language (e.g. patient vs customer), and paperwork. Finally, systems theory teaches that boundary functions are more difficult when systems differ in level of organization. Consider the interface of health care team and family or lay community groups with this in mind.

**Summary**

At the risk of making things more complicated than they already seem, I have reviewed three issues which make teamwork in trauma care somewhat unique: Changing styles of teamwork, changing customer focus, and the ubiquity of inter-teamwork. Does anything need to be done? First, teamwork must be integrated in the training of all health professionals. Inter-professional education must occur throughout health professional training. Second, working teams should afford themselves an opportunity to regularly review their teamwork perhaps. Third, some health care centres have "in house" teamwork consultants. In the teamwork project, which I direct teams can routinely audit their teamwork, using the tools described above and set teamwork improvement goals. If appropriate, teams can engage on a brief focused basis to resolve particularly difficult issues. This engagement is neither group psychotherapy nor an opportunity to "let it all hang out" rather these meetings are focused on the process and continuing improvement of collaborative work.

Figure 1  A schematic of the changes in customer focus and style of teamwork in the process of trauma care
Changes in customer focus and style of teamwork in the process of trauma care

Admission

- Broken body and ERT
- Broken body & family and the trauma team
- A reconstructed person, family & set of special teams
- Person, family, rehab facility, community care, workplace, insurance company

Discharge

- Classic multi-professional teamwork
- Dynamic multi-professional teamwork
- Dynamic inter-professional teamwork

REFERENCES


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