

ISSUES IN MEDICINE

The 11 P's of an Afrocentric trauma system for South Africa – time for action!

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A trauma system involves the interaction of prehospital care, emergency centre care and definitive care (including prevention and rehabilitation services), providing an organised approach to acutely injured patients within a defined geographical area, from primary care to advanced care. Trauma is, after infectious disease, the second leading cause of death and disability in Africa (Table I), and must therefore feature on the national health agendas of all African countries.¹⁻⁴ The requirements for developing cost-efficient, patient-centred trauma systems relevant to South Africa are outlined below (each item commencing with a P, and hence the title).

Table I. Differences between trauma incidence and types per world region*

Pathology	Africa/South America	USA	Europe/Asia
Penetrating:			
blunt	40:60	15:85	2:98
Trauma as health problem – WHO	2nd leading cause of death after infective processes	Blunt trauma 4th leading cause of death; penetrating trauma lower than 20th leading cause of death	Vehicle trauma 10th leading cause of death, while penetrating trauma much less common

*Derived from Trunkey.¹

Political will

The first step to establish a trauma system is political engagement. Government must realise that trauma is a form of preventable disease, which can be reduced through legislation. The costs of establishing the system will be offset by the savings of economically productive life-years and improved outcomes,^{1,4,5} as has been demonstrated in the Developed World. The United Kingdom (UK)'s national project only received impetus when the government accepted that its trauma care was inadequate.^{6,7}

In view of the moves towards a national health system in South Africa, and with trauma a leading cause of death and disability, this factor should feature prominently on the political agenda.^{3,8} Equally needed are prevention services, in areas such as interpersonal

violence and road traffic collisions, and treatment and rehabilitation (hospital services and transfer protocols).⁹

Political will requires more than tacit acceptance, but also funding and human resources, particularly as it may take up to 10 years before the effects of a well-designed trauma system are demonstrable.¹⁰

Public pressure

In the USA and the UK, the drive to establish trauma systems initially came from sustained public pressure. The latter is essential for government to improve care and establish systems of care based on best-practice. It is time for South Africans to bring the government to account, particularly in view of its commitment to the guidelines of the World Health Organization's Decade of Action for Road Safety 2011 - 2020.¹¹

Participation from multiple sectors

Establishing a trauma system is not simply a health service task; it involves many roleplayers who must 'own' the project from the start, including the departments of Health, Finance, Transport, Police and Local Government.⁴ In addition, the early integration of various NGOs (e.g. Automobile Association) and professional bodies (e.g. Trauma Society of South Africa, Association of Surgeons, Emergency Medicine Society) is essential to maximise service provider integration into an inclusive system.^{2,3}

Professional compliance

Professional compliance implies that clinicians and other professionals must practise medical care based upon best-practice. This ensures referral of the right patient to the correct level of care, within a reasonable timeframe, to optimise outcome without primarily considering the patient's ability to pay. Such a goal also requires practitioners to remain current by continuing professional development, skill development and awareness of local policies regarding the system in their place of practice. They should not attempt to provide treatment beyond their own, or their facility's, capability. Such training would include courses such as Advanced Trauma Life Support, Definitive Surgical Trauma Care, College of Emergency Medicine Diploma in Primary Emergency Care, and the part-time MSc or MPhil (Emergency Medicine). Courses for pre-hospital and nursing personnel will also enhance the care of trauma patients. Formalisation of advanced training in emergency medicine and the sub-specialty of trauma surgery should develop adequate human resources for the current burden of disease.^{12,13}

Provincial restructuring

Current referral patterns in South Africa largely deal with non-acute pathology and chronic care; trauma patients have different needs that differ from those of non-surgical emergencies, owing to the need for surgical care, which may be restricted to higher-level facilities.¹⁴

While most regional hospitals can manage surgical emergencies, many district hospitals and community clinics have neither the clinical skills nor the equipment to undertake complex care of major trauma. Delays are thus caused through multiple levels of transfer, leading to higher morbidity and mortality.

Transfer pathways are further hindered by the 'devil of distance' to definitive care. Provincial transfer policies must be flexible and EMS-

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driven to enable clinically based decisions to rapidly get the patient to the optimal level of care. Provincial staffing plans should establish posts for specialists in emergency medicine and surgery at regional hospitals and sub-specialist trauma surgeons at tertiary hospitals to oversee the implementation and maintenance of the system.

Private sector participation

In South Africa and elsewhere in Africa, care provision is a dichotomy. The highest proportion of health expenditure in South Africa is by the financially privileged and in the private sector, with a considerable amount also spent on chronic care of preventable disease in indigent patients. The private sector has well-resourced facilities but, being private, it follows that specialist medical staff in independent practice are not obliged to accept referred patients and to treat trauma except in life-threatening emergencies. The medical officer in a private emergency unit often has to try to refer the patient to a public facility for further care.^{14,15} This problem may be addressed by integrating the unconditional payment for comprehensive trauma care within a nationally funded care plan. The private sector also has skilled allied health and nursing personnel who can add value to the development of universally accessible and applicable systems.

Professional society accreditation

In the developed world, the assessment and designation of facilities as trauma care centres within a trauma system is undertaken by means of defined criteria compiled by professional organisations (e.g. American College of Surgeons Committee on Trauma) that have the expertise to assist the government in assessments and provide unbiased opinions on facilities to meet the criteria.

In South Africa, the Trauma Society of South Africa (TSSA) established such criteria, accepted by the Colleges of Medicine and the Health Professions Council of South Africa.¹⁶ It therefore makes sense that the TSSA, as a group of trauma professionals, assists in this task in South Africa.

Proper data management

Data collection and audits assist in determining public policy and the quality of care within a care system. Databases that collect identified data from multiple providers allow comparison of outcomes and determination of the beneficial effects of a trauma system, such as the TRACS system in the USA. A long-term study from Canada has also demonstrated this.¹¹

South Africa has a dearth of data. Government could consider universal implementation of the Trauma Society Trauma Bank in all public regional and tertiary hospitals; this would build up an accurate and comprehensive picture of the burden of disease of more severe trauma, to extrapolate the findings to public policy.

Purpose-driven governance – improved outcomes

Quality data can revise practice in line with good governance principles. Data from before-and-after studies of implementation of trauma systems show reduced overall costs and nonetheless improved outcomes.¹⁰ Additionally, health care funders can justify equipment and human resource expenses for cost-efficient care.

Post-trauma rehabilitation and support services

Rehabilitation services are not a priority in South Africa. However, international experience proves that early rehabilitation services increase the ability to re-establish economically productive employees for work. In most parts of South Africa, there are only acute in-hospital rehabilitation or long-term outpatient clinic-based facilities. Only one province has a formal 'residential' multidisciplinary rehabilitation

service for longer-term rehabilitation (Western Cape Rehabilitation Centre (WCRC) in Cape Town). This shortage blocks acute beds with patients who need post-acute in-facility rehabilitation, since they cannot be discharged to an outpatient service. The private sector has such facilities, and public-private partnerships could potentially provide these to a wider population. This sorely needed aspect of the system would have to be built up from scratch.

Practise the theory in a financially sound model

Theorising about the ideal system, and adopting a system that works in other countries, is easy. However, attempting to replicate developed-world care in the developing world is foolish and short-sighted. We need a financially sound model, building on the existing infrastructure, that will lead to cost-effective care, through refinement of personnel allocation, patient distribution and resource provision. Currently, no such system exists, but with co-operation and determination it can be initiated and established. The necessary steps are:

- acceptance by national government of the need for trauma systems
- integration of the command and control of pre-hospital, emergency department, hospital and post-hospital care of the injured
- review of existing facilities and services, compared with a defined standard (e.g. TSSA guidelines¹⁶) to determine optimal transfer and referral pathways separate from those for chronic care
- determination of the true burden of disease, morbidity and mortality through ongoing robust data collection
- development of rehabilitation facilities in all provinces
- audit and refinement of the system until improved outcome is demonstrated.

Conclusion

Trauma systems improve survival and decrease morbidity – but can only do so after universal acceptance and sustained application. The incidence and impact of South Africa's trauma burden can be reduced through the development and implementation of an Afrocentric trauma system that provides efficient, timely and cost-effective care. It is time to move from 'islands of excellence in a sea of indifference' to a co-ordinated patient-centred system.

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