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Ensuring equitable access to high quality care: The task of uplifting trauma care in rural and district hospitals

Although there are well-established Trauma Centres of Excellence in South Africa (SA), the reality is that many acutely injured patients will be taken to busy rural, district and regional hospitals where the quality of care varies from facility to facility. Available evidence suggests that there is a high burden of trauma in SA and that resources to deal with it are inadequate.[1-4] Improving the quality of trauma care in rural and district hospitals will be a massive task.

Any healthcare system is tightly interlinked and complex – altering one component may have significant effects on the others. For example, employing an additional surgeon without expanding the capacity of the operating suite or the intensive care unit to cater for increased operative throughput may result in increased levels of frustration rather than improved service.

Poor outcomes tend to reflect systematic failures rather than individual failures. Without an overarching framework to provide a structure, strategic planning aimed at quality improvement risks becoming haphazard, ineffectual and even counter-productive. Improving a healthcare system requires multiple coordinated rather than isolated uncoordinated interventions.

Systems redesign encompasses three components, all of which need to be integrated: (*i*) the strategic planning process; (*ii*) design of a health system model; and (*iii*) appropriate quality metrics. A good strategic plan aims to develop a sustainable advantage and must answer these questions: 'What future do we want for our organisation/system?' – the vision; 'Where is our organisation/system now?' – the analysis; 'How is the vision to be achieved?' – synthesis; and 'How are plans to be put into action?' – implementation.

There exists a well-established model that breaks healthcare systems into three components namely, inputs, processes and outcomes, the latter being a direct product of the interaction between inputs and processes. Inputs include capital, physical infrastructure, consumables, fixed equipment, human resources and educational initiatives. Process refers to how care will be delivered. The relationship between inputs and process is not linear – increasing inputs without altering process will not necessarily result in improved outputs, and the converse holds true.

Being able to quantify how well an organisation performs requires appropriate metrics and multiple indicators that provide a platform from which to begin to improve processes and, ultimately, outcomes.

Improving the quality of rural trauma and acute surgical care in SA demands a situational analysis to assess the burden of disease, as well as the resources available. Planners can measure the infrastructure in terms of the number of operating theatres, the availability of equipment and adequacy of radiology facilities. They can measure the quality of the human resources available and the quality of the process of care and the outcomes. They can assess the process by auditing the delays that patients experience and assessing whether his/her visit to the district hospital added value to an individual patient's care. Once this situational analysis has been performed, the phase of synthesis can begin to decide strategies and interventions. For example, should more district hospitals be built or should the role of district hospitals in trauma care be reconsidered with decisions to bypass them by taking specific categories of trauma patients directly to the regional hospital? Based on the deficits identified, could staff training be improved? Which staff should be trained? Should new, targeted courses be developed or will pre-existing courses suffice? Should management fund emergency care staff to attend established courses such as those developed by the American College of Surgeons (e.g Advanced Trauma Life Support for doctors, Advanced Trauma Care for Nurses for nurses and Pre-hospital Trauma Life Support for paramedics)[5] and hosted in SA academic centres, or should educational programmes be developed that would offer training to staff within the rural and district hospitals in which they work? Can the development of new infrastructure such as telemedicine or surgical outreach programmes improve care?

There are many interventions to be considered. Without a structured systematic approach to improving the quality of rural trauma and emergency care these interventions risk being isolated and *ad hoc* and may well be ineffective.

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