Hernia is one of the most common surgical problems with more than 20 million hernias repaired annually worldwide. The care of patients with hernia is one of the major health care cost drivers. Resource limited countries are not immune and groin hernias are relatively more common in economically poor regions of the world.  

Historically it was considered critical to ensure the hernia was reduced and stayed reduced. Hernia trusses and many types of repair abounded. Nowadays any appropriate method of repair should factor in cost, immediate complications, time to return to normal daily activities and long-term complications including chronic pain and risk of recurrence.  

Hernia repair should be done electively; emergent repair has poorer outcomes and costs more. The number of emergency hernia repairs done in a country or region is inversely proportional to the quality of health care. Hernia repair the first time is far cheaper than the cost of repair of a recurrent hernia.  

The emphasis in this manuscript will be on groin (inguinal) hernias as they are the most common and any improvement would lead to a significant cost saving.  

As indicated previously all hernias should be repaired as soon as they are diagnosed. Despite significant cost implications patients presenting with uncomplicated hernia are usually put on a waiting list. The waiting list in certain instances can extend to more than two years.  

This is most likely in low-income countries. Sometimes a conscious decision is made not to perform a hernia repair electively.
Emergency hernia repair is associated with an increased mortality compared to elective repair\(^3\). Additionally, emergencies are an unplanned admission and capacity constraints for beds and theatre time may delay definitive care.

There may also be restrictions regarding the ideal choice of anesthesia and method of repair, repair by a less experienced person, a prolonged hospital stay and the possibility of an ICU admission. There is also an increased chance of recurrence in emergency hernia repairs\(^5\).

Costs associated with hernia repair may be fixed or variable. Fixed costs include theatre time, staff and equipment. Costs may vary depending on the choice of suture materials and/or the type of mesh used. There are major cost drivers related to hernia repair that are under our control. Admission time to time in theatre, the nature of the anaesthesia, type of mesh, duration of operation and length of hospital stay all affect cost. It is much easier to reduce the impact of variable cost when hernia repair is done electively rather than as an emergency.

The majority of individuals who have hernias are young and healthy. Additionally, most of these hernias are small, unilateral and non-recurrent. Inguinal hernia as a day procedure has been proven to be feasible and safe. It eliminates the need for overnight admission and therefore pressure on limited bed capacity. Bed pressure is a daily challenge at almost all hospitals irrespective of size even in low-income countries. Hernia repair may also be erroneously considered to be in the competence of central and tertiary academic hospitals only.

Hernia repair under local anaesthesia is safe. It is utilised in established hernia centres\(^6,7\), but rarely considered in low-income countries including South Africa\(^8\).

Despite it being extremely cost effective it has never been embraced by surgeons in Africa including South Africa even though its use is not restricted to fit patients. It is useful for high-risk patients such as American Society of Anaesthesiologists (AMA) Class III and IV. These high-risk patients may be done electively as day cases without a need for a High Care or ICU bed\(^6\).
Other benefits of hernia repair under local include; a more delicate operation, precise identification of the hernia defect, a shorter duration of anaesthesia, reduction of analgesics including opioids, early return to work and fewer post-operative complications. Post-operative complications which are eliminated or reduced include nausea, vomiting and urinary retention.

Despite the benefits of doing hernia repair under local anaesthesia the author is not aware of a single person championing it in low-income countries. Dedicated training programs are unheard of and it perhaps taboo to teach pre- and post-graduate students about it. Except perhaps in cases of bilateral hernias or recurrent hernia post-open repair, the benefits of laparoscopic hernia repair are far less than what can be achieved with a procedure done under local.

The discussions regarding the pros and cons of laparoscopic versus open repair are well known. Yes, there may be no major difference between laparoscopic and open repair done under general anaesthesia apart from immediate cost, but for the rest an open repair is probably better\(^9,10\).

The time saved by avoiding general anaesthesia increases actual operating time and operating room efficiency. It should however be recognised that a laparoscopic repair is better for bilateral and recurrent hernias compared to open repair under general anaesthesia.

Uncomplicated inguinal hernia repair lends itself to the principles of fast-track surgery/enhanced recovery after surgery (ERAS) programs, especially if it done under local anaesthesia. Some of the benefits of hernia repair under local anaesthesia are lost if regional anesthesia is used.

Another contributor to variable cost is selection of a mesh. The cost of a mesh if far less than the amount that is spent for repair of a recurrent hernia\(^11\). No one should be fooled by the words of old surgeons who claim that they have never had a hernia repair recur in their hands following a tissue repair. Their hernia repairs indeed recurred but perhaps the patient never returned to them. Some have suggested that if given enough time all herniae will recur\(^12\).
The debate regarding the type of mesh is artificial and driven by pharmaceutical companies for profit. Again, surgeons in low-income countries and continents are the most confused. The most expensive mesh may be perceived to be better. The choice of light weight vs. heavy weight, unitary vs. composite, one vs. two, synthetic vs. biological, antimicrobial impregnated vs. none and fibrin glue fixation vs. suture mesh fixation aggravate the confusion. He or she is likely to motivate for the most expensive mesh to use it for repair of any hernia, irrespective. Elective repair is often postponed indefinitely while waiting for ideal mesh. Unbeknown to many surgeons, a mosquito net can be used and is equally effective.

Hernias and predominately inguinal hernias remain a major cause of morbidity in low-income countries including South Africa. Having a disorganised training and hernia care programs worsens the challenges. The demand will continue to outstrip ability to care for all. Added to it is the confusion created by trade and using laparoscopic surgery as a hammer and “everything is a nail”. Quoting Sir Cecil Wakeley “A surgeon can do more for the community by operating on hernia cases and seeing that his recurrence is low than he can by operating on cases of malignant disease.”

We as surgeons can do more if we implement the following:

1. Prioritisation of hernia repair in training of under-graduate students, interns, community service doctors and surgical trainees;
2. Prioritise hernia operations to limit waiting lists;
3. The prescribed learning curve of a minimum of 50 cases for laparoscopic hernia repair should also apply to open repair under local anaesthesia;
4. Popularise the use of local anaesthesia for hernia repair;
5. Stop elective groin hernia repair operations at tertiary and central academic hospitals;
6. Groin hernia repair should be done only at district and regional hospitals; and
7. Encourage the use the cheapest mesh available.

The above plans can only be enhanced if regional hernia services are launched.
REFERENCES