

ORTHOPAEDIC SURGICAL RESEARCH; A CASE FOR PROSPECTIVE STUDIES

The advancement of any field is not only dependent on the continuous evaluation of existing structures and outcomes but also the development, evaluation, adoption and refining of newer methods. This is especially true in medicine and has recently been highlighted by the Covid-19 pandemic and the rapid technological advancement that followed. Research has been identified as one of the areas where increased resources and collaboration can result in improved outcomes of orthopaedic interventions in Africa (1).

Orthopaedics is a rapidly changing field and research is needed to keep pace with all the advancements. The management of orthopaedic patients is also likely to be influenced by genetics, environmental factors and availability of various resources. The practice of orthopaedics in Africa varies somewhat with that in other regions of the world. This would likely result in differences in the cases seen, the management adopted and the outcomes. Surgeons working in Africa may experience apprehension at using protocols derived from high income countries since they may not have at their disposal all the resources described in these protocols (2). African surgeons would need to develop their own protocols so that these differences are accurately described and evaluated.

It has been documented that the research output in Africa is low compared to its disease burden (2). Even when research is conducted, it is usually retrospective in nature and has poor methodological design. Better quality study designs are required to address these shortcomings. Well designed prospective studies have the potential to help bridge this gap. The design phase of these studies would require close collaboration of surgeons to form teams with statisticians, records staff and nursing staff. The team would need to design the study so that the variables to be collected are best suited to answer the most important questions of the communities in which the research is conducted. This would need to be done in a manner that it does not take away the surgeon's time away from clinical duties. The study by Nkosi *et al.* (3) on the management of fibula

fractures after gunshot injuries is a good example of surgeons designing studies of a topical issue in their region and documenting their experiences. The results of the study would assure surgeons faced with similar patients of the good outcomes of the protocol suggested by the authors.

Other hurdles in the design phase would be ethical clearance and funding prior to data collection. Electronic medical records may help if the data is well coded and entered accurately at source. The surgeon would need to participate during the implementation of these systems at their hospitals so that clinically relevant information is recorded at source to reduce the need for re-entry at the research phase. Prospective studies conducted in a setting of properly collected data at source would reduce the often too common instances of missing data in retrospective studies. The study by Ntombela *et al.* (4) highlights some of the challenges of retrospective study designs. Due to poor record keeping the investigators were unable to correctly determine if there was fracture related infection in about 12% of the study population. The same issue is also highlighted in the study by Muthuuri (5) where about 35% of the charts could not be included in his study due to inadequate documentation.

Prospective studies have the capacity to ensure all the required study variables are collected as shown in the study by Kubwimana *et al.* (6). The prospective study design allowed the investigators to collect study variables especially outcome measures that are not routinely collected in the course of clinical care.

As the movement to increase the research output of the continent grows, emphasis on prospective study designs is important to ensure quality output. To ring fence the clinical time of surgeons, hospital systems should be designed so that they collect relevant clinical data at source. The use of electronic medical record systems may help in making this process efficient.

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