Part 5: A manifesto for surgical health in Africa

Health system strengthening

It was a Sunday in mid-2015, when I was driving back home from a weekend away at a nature reserve in Northern Kwazulu-Natal, that I received a call from Salome Maswime. 'Hi, this is Salome. I would like to come to the meeting.' This is how Salome and I met. I was trying to establish a perioperative research network for South Africa, and Salome was adamant that obstetrics must be represented. It was a fortuitous crossing of paths, and now, eight years later, we work closely in obstetric outcomes research in Africa. Salome is Professor and Head of the Division of Global Surgery, at the University of Cape Town, and a leader in this space. She is amiable, thoughtful, and a great communicator across all levels. She is a tremendous capacity to bring leaders with diverse skills together for a common cause. She is leading change in surgery at the highest level in Africa.

I asked Salome what drew her to obstetrics? Just like Tinashe, it was a personal experience which shaped her career. While completing her community service in 2008 as a young doctor in a small rural town in KwaZulu-Natal, she ran the labour ward. It was the maternal deaths that she witnessed in the labour ward that were to determine her future. Amazingly, this was in the same small town where many years before, I did not have the courage to do a 'super GP' weekend locum, which would have resulted in me having to do a caesarean section myself without any previous experience. In that tiny hospital with less than 150 beds, there were two maternity cases in particular, which really affected Salome. The first case was a mother who needed a caesarean section. Following the spinal anaesthetic, the patient complicated with a 'high spinal' anaesthetic requiring endotracheal intubation, general anaesthesia and cardiovascular and respiratory support. Only one of the medical officers at the hospital could perform general anaesthesia, and as this doctor was unavailable, the management of the 'high spinal' was complicated and difficult. Unfortunately, the mother died awaiting transport to the regional centre for expert care. The second case followed shortly afterwards. It was another maternity case, where the mother presented acutely short of breath. While the working diagnosis had been pneumocystis carinii pneumonia (PCP) secondary to HIV, it was only when the pink froth of pulmonary oedema started to pour out of her mouth, that it was clear that her heart was failing, and the back pressure on the lungs was forcing the fluid out of her vessels and into her lungs. The management of the patient also required doctors who had had the 'cross-training' of anaesthesia to provide the endotracheal intubation and cardiovascular support. She too died awaiting transfer to the regional centre for care. At this early stage, Salome knew that she needed to learn more to provide holistic care for these mothers. It had been a traumatic time working in this distressing and disabling clinical environment.

The following year Salome moved from that small hospital in rural KwaZulu-Natal to the biggest hospital in Africa, Baragwanath, to train in obstetrics and gynaecology. Salome moved quickly through the ranks, and by 2014 with training complete, Salome embarked on her doctorate on caesarean section haemorrhage. When we spoke for the first time, about the meeting to launch a perioperative research group in South Africa, Salome was in the thick of it, reviewing the patients files of obstetric haemorrhage from 15 South African hospitals, and felt that she was reliving the distress of the labour ward of her community service. Even though she now had the clinical skills to manage the obstetric haemorrhage from her specialist training,

she still felt disempowered, as she could see that her early experiences of maternal deaths was playing out all over South Africa.

After the successful launch of the South African Perioperative Research Group (SAPORG) in 2015,[1] we moved to launching an African Perioperative Research Group (APORG) in 2016, and it was here that ASOS was launched. For Salome who was actively involved in the obstetric arm of the research, it felt like another blow to the stomach when the results came out. Maternal deaths weren't an isolated event in rural KwaZulu-Natal, as she learnt while doing her doctorate, and then she learnt that they weren't an isolated South African phenomenon, but rather a universal African travesty. Rolling forward to Salome's appointment as Head of Global Surgery in 2019 and our early meetings on the vision and strategy for the division, I clearly remember Salome's comment that access to- and the delivery of quality surgical care should be centred on '*health system strengthening*'. Salome had seen health system strengthening clearly from her experience with maternal haemorrhage. As a junior doctor in rural KwaZulu-Natal, she did not have all the clinical skills to manage maternal haemorrhage, and then when she did have all the clinical skills after training at Baragwanath, she could still not stop the haemorrhage, because around South Africa and Africa mothers were dying from bleeding. The health system was failing the clinician and the patient. It has been working through the narrative of this book, that I have only now really got to understand health system strengthening. It is interesting how Salome explains the concept to me. She says; '*Once you have seen it [poor outcomes because of dysfunctional health systems], you cannot unsee it*'. She sees all the clinicians across Africa trying to deliver the best care they can for bleeding mothers, but the health system in which they work is literally killing the patients. '*Poor outcomes are not the result of a single person, but rather a system failure.*' She was understandably nervous to walk away from her known clinical obstetric career. It felt like a massive risk, especially when moving to the unknown broader visionary work of global surgery. But she could not '*unsee it*' as what she had learnt from ASOS was that this problem was huge, pervasive and extending across the continent. '*It felt too important not to take the step (from clinical obstetrics to global surgery).*'

The conversation is more positive now, as we have a clearer idea of the problems preventing the delivery of safe anaesthesia and surgery in Africa. What we need to do now, is to work on the solutions to these problems. Working in this environment as clinicians and researchers certainly provides an important perspective on how to achieve this goal. The journey of trying to articulate my thoughts in this book, has led me to see that the need for 'health system strengthening' had been there from the very beginning. As I read through the manuscript again, it is everywhere.

The health systems in Africa are broken in so many ways. There was no antenatal care for the high-risk pregnancy mother who died in a pool of blood after delivering at home in Zimbabwe. There were inadequate human resources that forced Sue and the final year medical student to provide an emergency caesarean section to save the mother and child, or blood transfusion resources that the medical student had to donate her own blood for the mother. Sue's experience is similar to the non-physicians who are forced to deliver sedation in Africa to enable surgery, because the resources and expertise necessary to provide safe general anaesthesia do not exist in these environments. The emotional trauma for these non-physicians must be enormous, with such a high complication rate following surgery. It must be similar to the emotional trauma that Salome experienced when she watched a young mother die following the high spinal anaesthetic complication, because there was inadequate anaesthesia experience to manage this complication.

What is 'health system strengthening?' I would define it as creating a health care environment which enables the clinician to provide the best care possible for his or her patient. It includes the many components of the 'inside-out' quality surgical model, and the 'outside-in' surgical resources model. It also needs the supporting services necessary to ensure that everyone can access these quality surgical services. Health system strengthening to ensure safe anaesthesia and surgery in Africa probably would improve public health by about 30%, a potentially massive contribution to health. It is likely that the impact on population health will be more than the 30% stated, due to 'cross-training' that Zane referred to, as the ability of the resources and skills necessary for the provision of safe anaesthesia cross many disciplines and are often required to provide adequate emergency and critical care. This would have helped Salome's patient who died with pulmonary oedema in rural KwaZulu-Natal. Similarly, the surgeons' skill set also extends to other disciplines, and may have prevented the five-hour trip to Kinshasa of Dolly's patient who required a chest drain. The death of Agya's patient was aggravated by an environment which was devoid of sufficient staff, patient monitors and antibiotics. A sick patient cannot survive without these basic requirements.

We know from our work across Africa that clinicians care. Our responsibility must be to create an environment to enable and support the clinician at the coalface to provide the best care possible, to every patient. It is not right that Dr Azza Mashumba, the paediatrician from Parirenyatwa in Harare has to say; '*I come to work, I do my very best, but my output are stillbirths, my output are disabled babies...'* which leads her to the conclusion; '*we are struggling with the work we are doing… we are not helping patients.*' She, and all the clinicians in Africa *are* helping their patients. But it is the health systems that are failing them. If there were no clinicians to provide care for patients, we would have nothing. We must support the clinicians by creating an enabling and safe clinical working environment. The task may seem enormous, as the scope of the interventions needed is huge. It spans human resources, which includes amongst others, training and education, employing more healthcare providers, mentorship and leadership. It requires physical resources, from disposable equipment such as PPE, expensive equipment such as anaesthesia machines and monitors, surgical instruments, operating theatres and hospitals. It requires drugs and antibiotics. It requires policies, and budgets to create and maintain an environment capable of providing safe anaesthesia and surgery.

You may throw up your hands and walk away at this point, but please don't. When I floated the idea of this book on advocacy for safe anaesthesia and surgery in Africa, Tinashe implored me to write a manifesto at the end of the book. Writing this manifesto has made me reflect critically on what I now understand about the intersection between health and surgery and society. It has also helped me to understand how a declaration of intentions is framed by our position, either as an individual, a community, a profession, a group, political party, government, country, or region. If we can honour our place in these declarations, either as individuals, groups or communities, each of us in our own small way will contribute to immense health system strengthening in Africa. If we can each deliver on our intentions, as individuals we will collectively contribute either directly or indirectly to the provision of an environment capable of delivering quality, safe anaesthesia and surgery.

A manifesto for surgical health for all

As an individual I will reflect on the implications of any potentially negative demands on the community and the government that I make. I will commit to avoiding selfish demands, such

as demanding lower taxes, which may negatively impact on the delivery of health for others. Rather I will commit to my personal responsibility in ensuring my own good health.

As a community, we will articulate and demand appropriate healthcare for all. We will ensure that our representatives in government who fail to deliver on these demands or abuse their position of power to the detriment of the community, will not be tolerated and will be held accountable for their deeds.

As a healthcare worker, I will do my best to provide quality healthcare. I acknowledge that we are more likely to achieve this objective as a healthcare team, rather than as individuals. I will value the contribution of my colleagues, and I will respect every team member, immaterial of their position. I understand that to provide quality healthcare we need to create a working environment which encourages 'speaking up'. I therefore commit to listening and communicating in an open and respectful manner, which is devoid of any 'traditional' or supposed healthcare workplace hierarchies. I understand that this will then ensure that healthcare interventions which are needed will be timeously communicated and initiated[2] in the workplace. I will place the patient at the centre of care.

As healthcare workers and researchers, we will commit to increasing the quality of healthcare provision by embedding broadly applicable and generalisable evidence-based interventions into healthcare delivery. We will decrease amenable deaths (by ensuring these interventions are available to all) and decrease avertable deaths (by ensuring that these interventions are appropriately and effectively implemented).

As a donor organisation, we will identify the areas of our health interests that have a surgical requirement. We understand that as much as 30% of the management of any disease may have a surgical component, and we will explicitly include a budget for these surgical systems interventions needed for comprehensive disease management.

As a government, we will focus on health system strengthening. This will include ensuring that approximately a third of healthcare financing is ring fenced for safe anaesthesia and surgical provision and surgical system strengthening. We will commit to providing quality healthcare for all, with the understanding that universal healthcare, includes access to timely, appropriate, and affordable anaesthesia and surgery for all. To achieve this, we will ensure that surgery and anaesthesia is explicitly considered and financed within all healthcare sectors. As a government, we will honour our commitments to globally agreed health goals, including the implementation of a National Surgical Obstetric and Anaesthesia Plan.[3]

As a government, we will not use simple financial political hooks to ensure voter support, such as diverting budget allocations from health system strengthening and impoverished communities to more visible, but less effective short-term projects, both within and without national borders. Rather we will commit to intermediate and long-term healthcare system strengthening strategies which exceed the short-term political voting cycles.

Together, as a global community we will strive for health equity for all.

The Challenge

Africa has a problem. Nearly a billion of the five billion people globally who do not have access to safe and affordable surgery live in Africa. This amounts to over 80% of the African

population who do have safe and affordable surgery. How do we rise to this challenge? I hope you are inspired to contribute to making a change. You do not need to be a clinician, or in government to positively impact on surgical health in Africa. If you have skills or expertise in education, people, institutions, design or sustainability, then there is an opportunity for you to make a positive difference to surgical health in Africa.

There are simple rules that we can follow to capacitate surgery. If you can contribute to the delivery of some of these principles, we will be able to scale up surgical and anaesthesia care as a collective.

Rule number 1 is community education. People need to understand what surgical disease is, and their rights regarding access to safe surgical care and treatment expectations. Only then, will they demand the access to the surgical care that they need, through putting the necessary pressure on governments to deliver.

Rule number 2 is to invest in the correct people. This is about human resources. Surgical teams need people with personalities which value teamwork. We need to focus on building surgical teams with a flat hierarchy. To ensure we extend the reach of quality surgical care, we need surgical teams who embrace task shifting and task sharing. We need a supportive surgical team, and not an authoritarian one. In the longer term, we need to be educating and employing towards personalities which embrace collaborative teamwork.

Rule number 3 is to build the capacity of existing institutions. We should resist the temptation to first scale up the number of institutions, before addressing the current deficits within existing institutions. We should rather scale up the capacity to deliver better and safer surgical care at existing sites offering surgical care. This is epitomised by the assessment of critical care facilities in Ethiopia.[4] Of 51 facilities, not one was equipped to provide the highest level of critical care, and almost all of them only could provide critical care at the most basic level.[4,5] I suspect just as the base infrastructure exists for increasing critical care capacity in these institutions, in many African surgical hospitals, there is a massive opportunity to improve surgical capacity at these existing institutions by focusing on equipping these facilities appropriately for the delivery of anaesthesia and surgery first.

Rule number 4 must be to build capacity within physically close environments within a surgical institution. If we are to realise the power of task shifting and task sharing, to maximise the care we can deliver with limited personnel, then operating theatres, high-care facilities and surgical wards need to be physically close. If we develop theatres or high-care units in other remote areas of the hospital, we diminish the ability to cross cover and provide support necessary to support task shifting and sharing. The inability to cross cover results in less efficiency, and the inability to provide clinician support for task sharing and shifting results in an unsafe clinical environment. The impact is less functional and safe operating theatres, and the delivery of less surgical care which is unsafe.

Rule number 5 is to build replication models when equipping operating theatres, and more broadly, into the recovery and postoperative period. A replication model similar to the principle of KidsOR will ensure that costs can be contained through bulk negotiation, and maintenance can be standardised. Importantly replication is associated with improved patient safety. People can find things when they need them. A classic example is emergency drug administration, where a standardised drug cart is the highest ranked intervention for patient safety by operating

theatre experts.[6] It is possible that a replication model will result in a quicker response to a lack of surgical resources, and a safer clinical environment.

Rule number 6 is that in scaling quality surgical provision in Africa, we must go green. Climate change is adversely affecting population health, and in low resource environments this will further be aggravated by an increase in infectious diseases such as malaria, cholera and Dengue fever, and decrease crop production negatively impacting on nutritional health.[7] A focus must be on strategies to reduce, reuse and recycle to ensure that the most financially advantageous strategy does not contribute to other health challenges through a lack of sustainability and a negative impact on the climate and environment. With such limited healthcare resources, we have an opportunity to build a green healthcare system from the roots up. We must not miss this opportunity, as once we have resourced the surgical and health care system of the future, it will then be more difficult to make the necessary changes to an environmentally friendly system.

Rule number 7 is that we must integrate data into surgical provision. We need to report the Lancet Commission indicators for Global Surgery[8] so that we can track our performance in delivery safe and affordable surgical care. Similarly, we need to ensure that surgical outcomes data, together with process data supporting clinical care, are regularly shared and discussed with the surgical team, to enable the improvement in the quality of care delivered.

The final rule, rule number 8, is that we must work towards an organisational culture which creates an environment which stimulates internal motivation. Only once this is embedded in the organisation will there be a sustained, meaningful change (Personal communication, Pierre Barker) to patient care. Only then will an organisation have the hope of retaining people and importantly, retaining skills necessary to ensure health for all.

Conclusion

Universal health care is a human right. We will never achieve universal health until we can provide safe and affordable surgery for all. The under resourced and under capacitated health care systems of Africa are resulting in a preventable loss of lives. We must provide more surgery of a better quality in Africa. We can do this, although it is going to need action on almost every front. It is going to need community education and health systems strengthening, so that the mother of five in Masvingo is identified early in the pregnancy, and through an appropriate antenatal plan is placed in an environment where she is regularly assessed during the pregnancy, and in touching distance of a surgical facility which can identify and manage peripartum haemorrhage, early and quickly should it occur.

We can capacitate the hospitals to provide the type of surgical care that saves lives, like Janet received when she nearly died from a placenta that would not let go. This needs teams that can deliver quality care. A model for surgical teams was presented in the 'inside-out' quality surgery model. We need to move away from accepting the provision of little to no anaesthesia when surgery is needed, to clear intervention implementation plans to ensure that we deliver the best quality care within the operating room which extends into the postoperative ward within surgical hospitals. It is going to take a commitment from the clinicians on the ground to ensure that they walk the hard yards in ensuring that they build teams to implement evidence-based care which is monitored through appropriate processes and outcomes. I personally think this is the easier part of the task, as clinicians in low-resource environments have shown in numerous ways that they care.

However, we must remember that no matter how good a local surgical team may become, we cannot accept a working environment with suboptimal surgical resources. We need to capacitate surgical sites with human and infrastructure resources as discussed in the 'outside-in' surgical resources model to ensure we have the resources necessary to provide the appropriate surgical care commensurate with the level of the hospital. It cannot be accepted that for essential surgical services which should be available at all hospitals are not available, and that a patient with a chest injury requiring a simple chest drain must drive six hours on a motorbike to receive lifesaving care elsewhere. We all have a role to play advocating for good quality surgery and the implementation of NSOAPs. We must remember that money is not a barrier to ensuring surgical health. We must re-imagine budget allocations which are more in line with our understanding of public health, where diseases do not exist in tiny silos, but rather are components of many parts of a health system.

Finally, from small individual and community contributions to large charitable, corporate or governmental initiatives, there is a space for everyone to positively impact on surgical health and ultimately global health in Africa. Although the surgical mortality figures are distressing in Africa, it is possible to save many patients from a preventable surgical death. In fact, it is possible to save many patients, which will mean that more and more patients will realise the tremendous benefits of modern surgery. This is not going to be easy. But it is not impossible either. As Mandela famously said, '*It always seems impossible until it's done.*'

The biggest challenge is to ensure that people who are remote from the coal face of surgical provision, buy into the importance of getting surgical care right in Africa. It is not difficult financially. We are not asking for more money, but rather asking for the appropriate use of money earmarked for health. We are also not asking for unreasonable or difficult advocacy. It exists. People have spoken and put it high on healthcare agendas. The hard work has been done.

We know it is a key component to population and global health. We know that it accounts for the treatment of nearly a third of all diseases. The challenge is now for us as a global community to ensure that it is implemented from governments, non-governmental organisations, and civil society, right up to the WHO.

Only then, will it be 'done'.

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