Scintillating Surgery: A critical analysis of the idea of surgical innovation and what this looks like in a South African context

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I have chosen to depart ever so slightly from the premise that was given when thinking of ideas surrounding "scintillating surgery". I find that the simple narration on the capabilities of the next game-changing device or invention by an obscure first-world organization with neoliberalist interests does not do justice to the potential richness of the ideal that is scintillating surgery. Instead, I propose an excavation. A deep dive into where we are as a country, in the context of surgical innovation (S.I.) – and specifically ***surgical need***. What does S.I. look like for us? This ensuing discussion will be based on ideas of ethics, responsibilities of the surgical fraternity to self and society, and what it means to be responsive to the country's needs in lieu of the ideal of scintillating surgical innovation.

The central ideas of S.I. can be summarised by five Ps. Purpose – or "Why?"; Place (where is this innovation situated contextually, bearing in mind context refers to more than just geographical location); Process; the tangible/useable end Product; and the People that this S.I. is made for.[1] Furthermore, this essay speaks of S.I. as defined by Sharma et al. (2022) "SI is 'any' new surgical idea which improves patient welfare by ***solving an existing problem***".[1]

With this framework as our point of departure, we begin with an examination of where surgery is in South Africa. It is a necessary exercise, and not one aimed at platitudes about the deficiencies we already know about – bearing in mind the ethical responsibility medicine and by extension, surgery has towards society. Dell and Kahn report 3.59 operating theatres per 100 000 population; falling short of the global average that is

6.2 per 100 000. Additionally, theatres were clustered in urban areas, and there were a greater number of private operating theatres per insured population than in the uninsured public sector.[2] With this in mind – innovation in this essay is framed as *not* being related to procedures, techniques and technologies benefitting sole individuals. In The Ethic of Responsibility, Haanemeyer (2021) writes "[b]oth individual and collective (social) values are central to the physician's obligations".[3] In this regard, S.I. thus far has focused far too much on the individual.

Global Surgery has been purported as an academic initiative and practice aimed at improving access to timely, quality, and affordable surgical care[4], however, few practical solutions have been offered. Here I now introduce the idea of "economies of scale", pioneered in healthcare by the great cardiac surgeon Doctor Devi Shetty in India, another low- and middle-income country (LMIC). Economies of scale refers to the cost advantage experienced as a result of increasing numerical output.[5] What this means, translated for the purposes of this discussion, is that there is the potential to improve access to services through the foreclosure of borderline defunct/underperforming units and diverting services elsewhere, making the cost of each individual surgery lower by eliminating certain things in low-risk patients. A borderline reinvention of the tiered health system as we know it. Lefevre (2022) and colleagues demonstrated the potential that lies in decreasing known inefficiencies for positive reform in healthcare and obstetric care, using economies of scale.[6] This further validates the usefulness of this idea.

There is much room for criticism in this kind of solution, much of which I have also thought about. How would the implementation of this be accomplished? Against the backdrop of corruption and mismanagement in the public health domain, would the funds which are allocated go to the right places? Who polices those entrusted with this responsibility, given the failures of the health ombudsman and other regulators? Where does the tender system fit into the entire equation and what does this mean for surgery in the context of the ever-nearing eventuality that is the National Health Insurance scheme. Granted – these are questions that I do not propose to have solutions to. But it is surgical innovation, *for this country*. We cannot continue trying to solve problems with the same thinking that was present and possibly complicit in their creation.

Economies of scale in South African healthcare, as applied to surgery, is a proposition to solve the current problem of access to surgery for the citizens of this country. For the many purposes of expanding the surgical disciplines footprint, the creation of more training posts,

routes for subspecialisation (despite a high burden of disease in congenital heart disease, there is no training pathway available for the discipline of congenital cardiac surgery) and reinvestment of funds into surgical research is needed. The breadth of pathology seen in sub–Saharan Africa presents a unique opportunity to be leaders in many areas of surgical care, satisfying our rich heritage of proposing novel, trusted solutions to the world and the need to try a new way. The solution I propose could yield positive results in many of these domains.

I emphasise this because perhaps we are at a time of looking inwards as a surgical fraternity, taking responsibility for issues traditionally thought of as belonging to public health or economies. This approach fulfils what is traditionally thought of as Surgical Innovation. We need not reach further into the future to solve the problems of the present. Getting the basics right, with the tools we have. *That* – is scintillating surgery.

References

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