



THE **Truth** ABOUT SURGERY:

PERSONAL ANECDOTES FROM A PUBLIC-SECTOR SURGEON (PART 3)

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This is the third article of a three-part series. In the first two parts, the author examined the difficulties of a complex surgery and patient care (<https://bit.ly/30cZPq4>), and explored the importance of knowing one's ability and capacity (<https://bit.ly/3i91UeD>).

The truth about innovation and technology

The embracement of technology or innovation is often a paradox. While promising to be better, safer and more efficient, it often confounds and can lead to diametrically opposed behaviours by surgeons. Besides resisting the utility, there may be vocal opposition of its application as it nullifies and possibly makes tried and tested techniques obsolete. There are multiple historical examples of this, especially in the realm of minimally invasive surgery (MIS).

When the first laparoscopic colorectal surgery was performed in my old department in the 1990s,

it took a good part of the entire day (approximately nine hours). In 2005 and 2006, the department made a concerted effort to embrace this, and every consultant and associate consultant pushed, learnt and toiled. It was not surprising that by 2010, the department published many research papers supporting the technological advances of the procedure.

But if we dive deeper into the nuances, there are some major differences. For example, we were once able to perform four to five major open colorectal resections with an untrained assistant in one operating list. In contrast, laparoscopic surgery may take 30%

to 50% longer, is more expensive due to the surgical consumables needed, and the assistants become critical for success because even camera holding or helping to grasp structures require some hand-eye motor coordination and a learning curve to surmount. The common joke we make is that laparoscopic surgery transfers the pain of the operation from the patient to the surgeon, as the frustrations experienced by the lead surgeon in sorting out equipment and assistant issues can be huge. But in 2020, patients will opt for laparoscopic surgery due to its purported benefits – faster recovery due to less pain with smaller incisions, better cosmesis and of

course, some just feel that the latest is always better.

This example is replicated across many specialties. For example, trans-oral surgery for thyroidectomies, endovascular for abdominal aortic aneurysms, oncoplastic surgery for wide excision of breast cancers and laparoscopic hepatobiliary surgery. Despite doing fewer cases per day at higher costs and higher operating expenditures, many of these surgeries were supported by policy makers because research evidence and patient outcomes seem to justify them. But as newer technologies are introduced with expensive patents, policy makers cast critical appraisals to see if these innovations warrant national investment and whether they should be made generalisable for the public.

This is in the same mould of an ongoing debate for providing subsidies for some of the biomarker tests for cancer drug selection. What may be necessary for certain conditions may not be cost effective, and long-term concerns remain about unchecked support leading to an unsalvageable drain on the national gross domestic product in the future. Prudent spending is therefore required for long-term sustainability, but this sometimes leads to clinician and surgeon frustration, as it reduces accessibility to the tools of the trade.

The advent of the robot

The robot is a classic example. When first launched, it was the urologists who mastered robotic prostatectomy and made it the gold standard of surgery. Without doubt, the artificial intelligence the robot provides has improved dexterity compared to laparoscopic surgery, better 3D views of structures and the surgeon sits down on a console thus reducing physical fatigue, extending the shelf life of the surgeon even if one ages and is beset with tremors or poor eyesight. Other specialties however, struggled to prove that the robot provided better outcomes with the technical advantages. The cost also became

prohibitive and limitations were placed on its use or in further expansions around the world, including Singapore.

During international conferences, my Asian and Southeast Asian colleagues remark that they cannot quite understand why a rich and advanced city state like Singapore would place so many restrictions on the utility of the most advanced MIS tool. Among our regional neighbours, rural populations have no access to expensive laparoscopy or robotic surgery unless patients can afford both the surgery and the travel to the cities. Surgeons there have to perform open surgeries for the majority of the work they encounter. In MIS cases in these countries, it is also not uncommon to hear that surgeons, in attempting to cut costs, will recycle some consumables and disposables for other patients to use.

Yet in these discussions, it is often remarked that without justification of routine utility in Singapore, other countries are also hesitant to adopt technologies that serve only a few well. With improving education and training however, it is quite apparent that our regional neighbours are rapidly overtaking us in scale and ability. Many send their fellows to the US or Europe for advanced training, which provides justification for investment in these technologies once a critical mass of trained surgeons is available. Our neighbours also hold many large international conferences with guest surgical experts from around the world who are generous in proctoring the local surgeons. There are also multiple collaborative annual events with internationally famous cancer centres, thus increasing breadth of research and enhancing the reputation of these countries. At these conferences, I witness large cohorts of the countries' surgeons gathered and they are, plain and simple, hungry. They are hungry for knowledge; they strive to improve and they are galvanising each other to become world leaders in their surgeries. The energy is often inspiring.

Adapting smartly

With limited utility or access in Singapore, our young surgeons are now unable to hone their skills on this new device. Knowledge and mentorship of the device becomes extremely confined and innovation becomes even more restricted. Although it does not affect my surgical specialty much, I am highly aware that without constantly embracing new technologies and evaluating them as they are placed in the market, we run the risk of losing relevance in the region and internationally.

I have been careful in adopting new surgical techniques. The latest innovation will often require the test of time to provide evidence of its safety and clinical indications. It is very much like our Singapore growth model. We do not have the clinical volume to provide international leadership in procedures, but we may be able to provide the ecosystem for research and development due to our nation's stability and cast-iron reputation. Laparoscopic colorectal surgery was not the standard of care when I was a medical student or intern; it was unheard of. But the rapid scale of adoption allowed us to become a regional leader relatively early. Many of us have joined international consortiums to combine data and knowledge. It is clear to me that robotics is still the path much needed for the future and there is a need to have broader access for all to dabble, learn, debate and innovate. More importantly, this allows us to retain a position regionally and internationally. I would strongly advise surgeons to continue to be inquisitive, be aggressive in learning and innovation, but similarly be cautious with new developments and review all data rigorously before adoption.

Surgery is a team sport!

In the popular Netflix series "Doctor-X", freelancer surgeon Dr Michiko Daimon acts as a lone wolf and has complete disregard for institutional hierarchy. She performs surgery of the most

complex nature and salvages many other senior surgeons' operations that run into complications. She is highly skilled, decisive, works fast and her famous line is: "I will never fail!" However, she is lonely and has few friends, has little respect for her colleagues, and the environment is often highly toxic. As illustrated in Part 1 of this series, the reality of our ecosystem is vastly different. While Michiko exhorts compassion for patients as the main motivation for her decisions and has blatant disregard of her colleagues' opinions, our environment in contrast is highly reliant on each other.

It was clear to me during my Health Manpower Development Programme (HMDP) fellowship that the success of any complex procedure is dependent on how collegial and collaborative the surgical unit is. There is thus a core team that is blended and moulded together for the best results. While skill sets are important for every surgeon, just like any athlete that practises and practises to achieve a high level of proficiency, being a solo star does not automatically yield good results. In the HMDP unit I was in for a year, not all may perform complex procedures independently, but everyone chips in – be it discussion of cases, development of recovery protocols, or physically assisting in the cases. Success or failure is felt by all, not just the lead surgeon, and unit motivation levels are extremely high to achieve good results. As the reputation of the unit grows, more cases are referred in and the volume of procedures rises with resultant enhanced outcomes. This cycle is repeated in many surgical units around the world and having a strong team has been the constant DNA for success. We are attempting the same pedagogy back home.

For pelvic exenteration surgery like the example in Part 1, I had worked with the same urologist and the same few anaesthetists from the very get go. I had also received immense help from a fellow colorectal consultant

whom I would always call on in many of these cases, especially if they were highly complex. We worked out steps for the surgery, ensured that every team member was well supported, and would review the cases and outcomes. As our experience grew, we could better predict the duration of operation and estimated blood loss. This was important to allow a work rest cycle for the surgeons, discuss risks with the patients and ensure that resources were available. And as our **ability** and **capacity** as a group grew, the cases we performed also became more difficult. While all of us did many cases separately, we would always return to the same team when the cases were complex.

There are of course many other surrounding healthcare providers that participate in patient care. But like a military Special Forces team, the operating theatre surgical team is special because enduring hardship and adversity creates a strong bond. I enjoy the strong camaraderie and collegiality. I have strong trust in everyone's ability, and have no qualms expressing uncertainty or ignorance, and in displaying my weaknesses. I am also glad that my weaknesses are overcome by the strength of my team members.

As in the case shared in Part 1, I had strong faith in my vascular surgeon to overcome the difficult situation. The other team members, such as the urologist, fellow colorectal consultant and anaesthetist, were also vital in ensuring calm and good decision making. Having trust and confidence in each other allowed us to bail out of this extremely hairy situation successfully. I am sure many other surgeons have their own special buddy or colleagues they refer to and call to for help. The modern surgeon, unlike those of yesteryears, rely heavily on each other to provide calm in the midst of a storm, to provide mentorship regardless of age gaps, and sometimes are important coaches for each other to improve

skills and techniques. This trend is likely to continue for a long time.

Conclusion

So, these are my views on the truth about surgery. Technological advances will continue to force individuals to adapt. We just have to continue to be strong advocates of innovation, but critically appraise before embracing or rejecting them. Prudent healthcare spending has to remain a constant guide as more is required to sustain population health. But in the uncertain environment, self-management becomes increasingly important. Be aware yet humble of ability, have insight and motivation to continue to improve capacity. Self-management also requires building strong bonds and friendships with colleagues. Strength in teams rather than soldiering on alone provides a better safety net, allows blind spots to be covered and provides continued enjoyment in a challenging but fulfilling career. That, is the simple truth. ♦

A/Prof Chew works in Sengkang General Hospital and enjoys his work with a good team. He aspires to inspire, connects rather than just communicates, and to continue to do good work in the public sector.

