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LETTER TO THE EDITOR

Letter: Taking the bull of competency assessment by the horns

I read with interest the survey by Nel et al.[1] "Procedures most frequently performed by South African-trained general surgeons – implications for training and assessment". I am heartened to see the long overdue move towards work-based assessment (WBA) and procedural competency as key elements of the assessment of fitness to practise as a consultant surgeon.

The survey of recently trained surgeons found that 49% of the respondents felt unprepared to undertake one or more of the 10 procedures they most frequently perform. Of these, the procedure they felt most untrained to perform was colonoscopy. Even more revealing is that those who had gone directly into private practice had a 100% expectation that they should be able to perform colonoscopy.

It is obvious that there is a deficit at the training institutions with regards to this particular procedure. The recommendation from the survey is that colonoscopy should be chosen as one of the entrustable professional activities (EPAs) for WBA in South African training. They state, "[t]his ensures inclusion of procedures that are both frequently performed by surgeons in real-world practice, as well as supervised frequently enough during training to facilitate assessment".

I would like to institute a word of caution before the College of Surgeons decides that colonoscopy should be one of the EPAs. The reason for this is that there is simply not enough capacity at the training centres and their affiliated hospitals to train in colonoscopy to ensure competency, which is well defined for this procedure[2,3] yet is largely unmonitored by universities and examination bodies.

General surgeons perform the majority of colonoscopies outside the nine university gastroenterology training units. They have received limited or no structured training in the procedure as registrars and have learned largely on an experiential basis once they have entered independent consultant practice. KwaZulu-Natal Province, with a population of circa 11 million in 2016, had 12 public hospitals performing flexible endoscopy. General surgeons and surgical medical officers constituted 90% (72/89) of the endoscopists who performed just over 22 000 endoscopic procedures of which approximately 25% were colonoscopies.[4]

In the private sector in South Africa, which covers an insured population of just under 9 million, 150 000 colonoscopies are performed annually, mostly by general surgeons (66%), followed by gastroenterologists (20%) and physicians (14%).[5] In contrast, the best estimation at that time was that 70 000 colonoscopies were performed annually on the circa 50 million uninsured individuals who utilise state hospitals for colonoscopy and reflects the dichotomy of the health provision sectors in South Africa and the lack of physical and manpower resources.[5,6]

In addition to the restricted access to colonoscopy, the quality of this procedure by the different practitioners in South Africa is sporadically reported and probably highly variable.[7,8] Colonoscopy competency-based assessment, in the form of criteria based direct observation of procedural evaluation and other similar observational assessment tools, has been shown to be effective and correlates with the key performance metrics in particular a caecal intubation rate (CIR) of ≥ 90% confirmed by photo documentation which is the recommended competency level for symptomatic patients undergoing the procedure.[3] Though individuals acquire procedural skill sets at different rates, the average number of colonoscopies required to achieve a CIR of ≥ 90% in the closely monitored United Kingdom (UK) training systems is 233 procedures with less than half the trainees (41%) being competent after 200 procedures.[9] In Rotterdam the ≥ 90% CIR threshold for trainees was on average reached after 280 colonoscopies.[10] These figures relate to medical gastroenterology trainees and, of course, surgeons naturally believe that they could develop such a competency level with fewer colonoscopies. The evidence from the United States (US) does not support this belief as colorectal surgical fellows at the Mayo Clinic reached competency in colonoscopy at around 275–300 procedures, similar to those for medical gastroenterology trainees, despite an average experience of well over 50 colonoscopies during their general surgical training.[11] In the UK, the trainee will not be left alone in the endoscopy suite until they have done over 200 colonoscopies.

If competency is the goal, then these numbers should act as a framework for the volume load to attain this. At the Groote Schuur Hospital combined medico-surgical gastrointestinal unit around 1 800 colonoscopies are performed annually. There are four medical gastroenterology trainees and two colorectal surgical fellows at any one time who are taught by two medical gastroenterologists with additional general medicine duties, and two colorectal surgeons. The surgical registrar pool across all platforms is approximately 32. In short, there is just enough capacity to train the sub-speciality trainees and currently no capacity to train the general surgical registrars in colonoscopy. I am fairly sure that this pertains to most if not all of the training programmes.

I would suggest that the College of Surgeons and the College of Medicine of the Colleges of Medicine of South Africa, in conjunction with the South African Gastroenterology Society, do a national situational analysis regarding training in colonoscopy. This must include resource availability, procedure volume and how routine trainee monitoring

during the accrual of the skill set is performed. Until this is done colonoscopy as an EPA for general surgery trainees should be put on hold.

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Colonoscopy training in South Africa - in crisis? – Response

Dear Editor,

We thank Professor Thomson for his highly insightful letter to our manuscript "Procedures most frequently performed by South African-trained general surgeons – implications for training and assessment"[1] and the opportunity it creates to further discuss this important issue.

Our data shows that colonoscopy is an important procedure for general surgeons to learn and to perform competently, considering the real-life practices and expectation of general surgeons in the current healthcare system. The data also suggests that there may be enough supervised colonoscopies during training to allow for reliable workplace-based assessment of trainees' competence in performing the procedure. However, it does not tell us whether enough cases are done during training to actually achieve competence. As rightly mentioned, the survey does indirectly highlight inadequate exposure for trainees – as evidenced by the fact that 23% newly qualified surgeons reported feeling unprepared to perform the procedure independently.

Colonoscopy is certainly not an easy procedure to master; it humbles even the most experienced endoscopists at times. The number 200 is often cited as the minimum required to achieve competence. Specifically, this figure refers to the number of scopes needed for a trainee to reach a caecal intubation rate (CIR) of over 90%. However, there is an important nuance to this number and its implications for training. It is important to note that just because a trainee has not yet reached a CIR of 90%, it does not mean they are failing to reach the caecum altogether. Data from the Joint Advisory Group on GI Endoscopy in the UK demonstrates that trainees' mean caecal intubation rates are 68% after a hundred scopes, improving to 76% at 150 scopes.[2] In addition, effective simulation programmes have been shown to lower the number of colonoscopies required to achieve a CIR of 90% by approximately 25 to 50 procedures.[3] The CIR is also calculated from the very first colonoscopy, meaning it is somewhat harsh on the trainee's learning curve, i.e. if the trainee fails to intubate the caecum in their first 30 scopes,

but manages to do so for every single attempt thereafter, they will still need to do a total of 270 colonoscopies to achieve a CIR of 90%.

Moreover, while CIR of 90% is arguably the most widely used benchmark, it is just one technical outcome measure and not the only metric of competence. Skills such as pathology recognition and therapeutic abilities like polypectomy may require more than 200 colonoscopies to achieve proficiency. On the other hand, if the competence target is defined as detection safe scope handling and navigation alone, this could potentially be achieved after fewer (approximately 50 to 75) colonoscopies.[4]

The only data we currently have on the number of colonoscopies performed by South African general surgery trainees comes from a study published by Kruger et al.[5] in 2014, which showed that an average of only 14 colonoscopies were performed over the duration of training per trainee. Although this data is somewhat outdated and circumstances may have changed, particularly with the advent of increasing subspecialisation, it still suggests that trainees may have very limited actual exposure to colonoscopy. This raises the obvious question: why is this the case? There is certainly enough pathology in the state sector, where postgraduate training takes place. The extensive waiting lists for colonoscopy at state hospitals strongly support this reality.

As noted in this letter, there are currently not enough training opportunities for general surgeons, colorectal fellows, and medical gastroenterology fellows alike. The numbers quoted, which highlight how few colonoscopies are performed in the state sector compared to the private sector where resource constraints are not as pressing, further reinforce this point. One of the biggest contributors to the limited number of colonoscopies performed in the state sector is human resource constraints. Fiscal limitations impact the health sector directly, affecting the availability of both doctors and nurses to run colonoscopy services. In addition, there are financial restrictions related to equipment use and physical space availability.

Furthermore, as medicine and surgery become increasingly specialised, there is an obligation for units and departments to train fellows – both surgical and medical. Often, fellow training takes priority over registrar training for colonoscopy. Fellows tend to stay in units for longer periods, making the investment of training time more worthwhile for consultants, whereas registrars rotate quickly through various subspecialties and general surgical rotations. Although this is a particular issue in tertiary academic hospitals, in hospitals without fellows – such as secondary or district hospitals – staff shortages still pose a significant challenge. Registrars in these settings are frequently occupied with clinic duties, ward rounds, or emergency surgeries, leaving the consultant, who is skilled enough to run the endoscopy lists independently, to do so alone. As a result, many potential training opportunities in colonoscopy are lost.

While this situation is undeniably disheartening, it raises the uncomfortable question: should we simply accept that it is not feasible to train registrars to competence in colonoscopy, and therefore stop general surgeons from doing colonoscopy altogether? The answer would be yes – if colonoscopy were or could be performed exclusively in South Africa (SA) by subspecialist colorectal surgeons or gastroenterologists. However, this is clearly not the case. As mentioned in this letter, the vast majority of colonoscopies in SA are performed by general surgeons and will likely continue to be for the foreseeable future. Many of these surgeons will upon graduation, either self-teach or, if they are fortunate, find an experienced mentor to guide them early in their practice. Over time, they may achieve an acceptable level of competence, assisted by workshops or e-learning resources such as the Ghent International Endoscopy Quality Symposium (GIEQs) platform.[6]

However, relying on surgeons to acquire competence only after graduation exposes patients to the risks of their learning curve. Some surgeons may never quite master the technique, developing poor habits early and remaining unaware of how to correct them. This also increases the risk of missed pathology, with colorectal surgeons anecdotally reporting cases of gross lesions being overlooked by referring general surgeons. Additionally, some surgeons resort to performing colonoscopies under general anaesthetic because they are unable to navigate the colon skilfully enough to complete the procedure under sedation, without causing significant discomfort, thus risking perforation. Beyond the technical complications, this situation also exposes surgeons to medico-legal risks.

As Thomson rightly argues, registrars in SA are likely not given sufficient training in colonoscopy. Should we then consider removing it from Workplace-Based Assessment altogether? The answer is both "yes" and "no". When it comes to high-stakes decisions – for example, determining readiness for the FCS final certification examination – we certainly cannot, at this point, base such decisions on competence in colonoscopy. However, at a minimum, upper endoscopy should be included as an entrustable professional activity (EPA), to assess endoscopic skills more broadly. While upper endoscopy is easier to learn, there is meaningful transferability of skills between it and colonoscopy. For instance, basic scope handling, retroflexion, washing and suctioning, as well as recognising pathology – such as tumours, inflammation, bleeding, polyps, and strictures – are relevant across both. Additionally, basic procedures like taking biopsies, performing injections, placing stents, or removing polyps share foundational skills.

We would argue that colonoscopy, along with flexible sigmoidoscopy, should remain on the list of procedures for assessment/observation. This would allow us to leverage the formative potential of assessment whenever the opportunity arises. In doing so, we create chances for explicit, targeted feedback to trainees, helping trainees to improve when they do get the opportunity to perform these procedures under supervision. While it is technically not the 'correct' use of EPAs – since they are ideally based on observations of real patient cases – one could also consider WBAs using simulated scenarios. This is something that has been trialled at the University of Cape Town (UCT), for example. Of course, the gold standard remains observing real procedures in clinical practice.

Colonoscopy will remain one of the most common procedures performed by general surgeons, especially in the private sector, where we know the majority of SA general surgeons practise.[7] It is crucial that we acknowledge that when it comes to colonoscopy, at present, we are not doing enough to fulfil our responsibility of adequately preparing SA surgeons for the work society expects them to do. However, as with any crisis, recognising the problem also

creates opportunities, and there is much that individual departments, or the collective SA surgical community, can do.

Increasing the number of lists would be ideal, but this is challenging in the current fiscal climate with resource constraints. Several other actions can be taken, such as strongly advocating for the clinical services where training happens. Despite healthcare budget cuts, it is essential to preserve services – particularly colonoscopy lists – as they are the foundation of both patient care and training. Public-private partnerships should also be explored, both for training purposes and to expand patient access to endoscopy lists. Similar project lists already exist for other conditions, like breast and prostate cancer.

Second, there should be substantial investment in simulation. Simulation options range from simple box trainers to high-end virtual reality (VR) simulators. While a VR simulator can cost well over a million Rand, a basic box trainer can be purchased in SA for under R50 000. Simulation is invaluable, as it shortens the learning curve for colonoscopy and makes initial procedures on live patients safer, reducing errors and improving patient comfort. Alongside investing in equipment, we must ensure that our trainers themselves are well-trained to deliver optimal teaching to registrars. We can also develop a structured repository of electronic learning resources – for example, video tutorials and teaching materials. Platforms such as Colleges of Medicine of South Africa (CMSA)'s learning management system could serve as a central repository. There are also existing free resources, for example the Olympus EndoAtlas, for learning to identify pathology.

In terms of individual institutional academic programmes, colonoscopy should feature regularly in registrar tutorials, including "tips and tricks" for scope intubation/extubation, performing basic interventions, and optical pathology recognition. While structured endoscopy rotations may seem out of reach for many units, we should encourage creative, out-of-the-box thinking to improve registrar exposure wherever possible. An example is ensuring that every colonoscopy list includes at least one registrar case, even if it is only a flexible sigmoidoscopy. With prior simulation training and a fellow/consultant taking over at the right time if needed, registrars may be able to participate in entire lists without significantly slowing down the workflow.

On a national level, workshops focused on elevating registrar training in endoscopy could be established, again with potential industry partnerships. We should also increase the visibility of colonoscopy training at scientific meetings – for example, at the ASSA SAGES conferences or national Registrar Symposia – including debates and presentations by experienced trainers. Finally, we may need to accept that, given the current constraints in SA, final training numbers sufficient to achieve CIRs above 90%, and other traditional competence metrics, may only be reached after graduation. However, this does not mean we should give up. It is possible to formalise continuing medical education for SA surgeons, develop structured mentorship and proctorship systems, and focus registrar training to establish a strong foundation focused on basic competence and safety.

We firmly believe that much can be done to improve colonoscopy training in SA. Achieving this will undoubtedly require significant effort and innovation. We can make more progress if convenors, heads of departments, and those invested in advancing colonoscopy training across SA come together intentionally to share resources and ideas. We also need leadership from those in positions to influence the direction of surgical training nationally. In this spirit, we would welcome a response from ASSA or the College of Surgeons of South Africa.

Ultimately, we must act. We can no longer afford to ignore this issue.

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