Response to Call for Contributions to the RCS Commission on the Future of Surgery

A statement from

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Background

The Association of Surgeons in Training (ASiT) welcomes the opportunity to respond to and engage with the College on the Commission on the Future of Surgery. It is essential that any work that seeks to predict, shape, or respond to the future of surgery, must include direct involvement of trainees who are, in essence, the future workforce.

About ASiT

Founded in 1976, ASiT is a professional body and educational charity (Registered Charity number 274841) working to promote excellence in surgical training across all ten surgical specialties in the UK and Ireland. ASiT is independent of the Surgical Royal Colleges, National Health System and training regulators (General Medical Council, Joint Committee on Surgical Training), and is run for trainees by trainees.

ASiT Response

Trainees and the Future

Trainees are, by definition, the surgical consultants of the future. Their preparedness to use current and emerging technologies will have a profound impact on the future competency of the surgical consultant body, and will shape the ability of the Health Service to deliver cutting-edge care and optimise patient outcomes. As the delivery of surgical care evolves the focus should be on training to deliver excellent, rather than adequate, surgical care. High quality surgical training is the cornerstone of excellent and safe patient care.

Trainee Access to New Technologies

Trainee access to innovation and new technologies is currently lacking and where access is available, there are often inequalities between regions and centres. ASiT is currently undertaking a survey along with RCS to better define this issue. The integration of new technologies into surgical training should be welcomed, however it is essential that both existing surgical consultants and surgical trainees are offered the opportunity to develop their skills in these newer techniques and treatments. Current practice, in which such skills are often not acquired until post-CCT fellowships, or even early consultant practice, fails to "future proof" surgical training and undermines the ability of the NHS to deliver fully trained consultants who are able to deliver cutting edge care. Similar issues, in which fellowship program directors have reported on the inadequacy of current programs training surgeons to perform even some basic surgical tasks such as laparoscopic suturing have been previously reported in the USA (1) and it is important that the future of surgery does not fall foul of the mistakes of the past. There is obviously a primary need for current trainers to achieve competency with these new technologies prior to training others, but innovative ways can be found to enhance trainee experience of these techniques, including cadaveric wet lab training for both trainees and consultants, and dual-console robotic training.

The Direction of Surgical Training

It is essential that the future of surgery continues to train surgeons to be highly skilled surgeons with both general and specialist skills. ASiT has previously commented on the Shape of Training review (2), which proposes that the length of training be reduced with a move to more generalised training. ASiT's position is clear that this is not an appropriate approach to future training in craft specialities, in which greater flexibility is required to gain the technical, professional and knowledge-based skills. As surgical training becomes more complex with the addition of innovative technologies, it would be pertinent to maximise training opportunities for trainees by increasing trainee-trainer contact time and to establish appropriate length of training to CCT. Indeed, one aspect of the Improving Surgical Training

project which ASiT welcomes is the aim to increase trainee-trainer contact time (3). ASiT would not support separating credentialing in innovative technology from the curriculum for CCT as ASiT believes that surgical curricula should evolve to include emerging technology (4). Consequently, a trainee should achieve CCT with suitable experience in the technology required to practice as a consultant in their chosen specialty, including both the general skills required of the specialty and the trainees chosen specialist interest. ASiT believes that the development of an integrated training framework which considers the needs of both consultants and trainees, in allowing training and exposure in new innovations and technologies, is essential to the future delivery of healthcare.

ASiT has collaborated with RCS England to deliver a national survey; the ASiT/RCS Simulation, Innovation and Technology Survey (5), which is live at the time of writing and aims to evaluate trainee attitudes towards, and access to training in, new technologies in surgery, which could provide valuable perspective on this issue. ASiT anticipates reporting the results of this survey in April 2018. This survey will also gauge the current financial responsibility of innovation and technology training. ASiT evaluated the cost of surgical training in 2014 and found that medical students are graduating with upwards of £27,000 of debt and surgical trainees are spending an estimated £26,000 to achieve mandatory CCT requirements (6). As the development of innovative curricula occurs, the already significant financial burden of surgical training must be considered. The increasing complexity of treatments and technology should not come with increased costs to trainees to learn those techniques.

Despite continuing technological advances, the adoption of surgical simulation as a training modality remains beset with familiar problems which have been highlighted in ASiT's 2011 position statement on surgical simulation (7). Here, ASiT highlighted the need for:

- Structured integration of simulation into surgical curricula
- Equality of access to simulators and simulation training across training regions

- Exploration of financial issues surrounding funding of simulators at national, regional, deanery, and centre-specific levels
- Greater recognition of the importance of non-technical skills and their need for incorporation in simulation which has traditionally focused on procedural / technical ability
- Incentivisation for development of new, relevant simulator technologies

A recent UK study on the barriers to simulation technology adoption has highlighted that seven years later, these basic problems remain (8).

The effectiveness of simulation, and its ability to shorten surgical learning curves and improve trainee ability, can no longer be in doubt in view of the enormous body of available literature on the topic (9). Action is needed to understand and address the issues which have hampered uptake of simulation in UK surgical training. Without this, trainee and trainer buy-in will continue to suffer, and the advantages of simulation will be lost.

ASiT wishes to highlight the need to anticipate the future of simulation technologies and develop a plan to evaluate, certify, and integrate these into the NHS and surgical training in particular. A plethora of simulators, with an overwhelming emphasis on procedural or technical skills trainers are currently available, with varying degrees of validity evidence available for each. At present, no overarching framework to assess these on their validity, suitability, and cost effectiveness is in place. This leaves local bodies to individually consider simulator purchasing on an often-arbitrary basis, such as the purchasing of take-home laparoscopic trainers in several deaneries for Core Surgical Trainees, despite the majority of trainees not expressing an interest in general surgery (unpublished local data).

- With simulators increasing in fidelity whilst reducing cost, ASiT anticipates the cost-effective availability of moderate- to high-fidelity haptic simulators within the near-future. A joined-up

national approach to evaluation, certification, and acquisition is needed to achieve maximum value for money, both for taxpayers and trainees.

- Access to more traditional training methods, including wet labs and cadaveric courses, have traditionally rated highest amongst trainee survey responses. While ASiT recognises the value of technology-based simulation, attention must also be given to improving access and affordability of existing technologies as well as investing in the development and purchase of new ones. These remain the current gold standard for training and credentialing for competency in new surgical approaches (e.g. TAtME, da Vinci robot competency) and the familiarisation of new technologies.
- Future technology-based simulators are likely to increasingly incorporate immersive (headset-based) virtual reality, and/or augmented reality platforms. The effect of this is likely to be threefold: 1) to allow increasingly complex simulations in immersive environments, 2) to expand the application of simulation to non-technical skills training through interaction with aspects of procedures beyond the technical points of the procedure itself, 3) encourage multi-user and multi-disciplinary interactive simulation and learning. All of these are likely to further increase the effectiveness of simulation training.

Many technologies are likely to influence the future of surgery are already in use in different industries (10). ASiT wishes to highlight the context in which many of these advances were implemented in other industries. As highlighted in discussions with Dan Boorman, Boeing production test pilot and key collaborator in the development of the Safer Surgery Checklist through his experience with flight safety checklists, many of the advances in aviation safety have been driven through public and subsequent political demand rather than self-regulation of the industry (11) and that, more often than not, these shifts in public opinion have occurred in response to airplane crashes or similar disasters.

In the current climate, there is a real risk that it will take similar disasters in the NHS until significant appetite for change is engendered. Pre-emptive action is required if this is to be prevented.

While the Commission's aims focus on emerging and future technologies as the drivers for change, ASiT wishes also to highlight existing areas of care whose improvement have the potential to significantly impact patient outcomes. While new technologies will undoubtedly continue to improve care, the impact the vast majority of these are likely to have on measurable outcomes is probably incremental, if any at all. Despite its exponential expansion, for example, evidence for the vast majority of robotic procedures suggests that the main impact of robotic surgery to date has been to increase cost without improving outcomes (12). ASiT does not believe that this should discourage the implementation of advanced technologies. However, with literature suggesting that preventable failures of postoperative care account for measurable differences in postoperative mortality, with twice the adjusted rates of death in some centres compared to others ("failure to rescue") (13), it is clear that innovation in other areas such as perioperative care may be able to achieve improvement in outcomes where operative technology alone does not.

ASiT believes that the expansion of surgical training to include innovative technology will be an important factor in ensuring that a career in surgery continues to be an attractive career choice. ASiT believes that trainees should have the opportunity to develop a fulfilling career with the ability to become experts in their chosen fields.

A discussion of the future of surgery would not be complete without highlighting the integral role of the surgical consultant. The surgical consultant is a uniquely skilled individual in both technical and non technical aspects. It is essential that trainees today have viable and fulfilling surgical consultant posts available to them on completion of surgical training and that the role of the consultant is

retained in the context of an expanding surgical team. The surgical consultant must have sufficient access to operating time, access to elective and emergency operating, access to clinics and to a surgical team, and adequate administrative support to equip them to deliver the best possible care and to drive quality improvement, research and development. It is essential that trainees have the choice to sub-specialise in areas in which they are interested and passionate about, and will truly become field leaders and improve patient care.

The future of surgery, with an exponential increase in technology and complexity will require a wider team with a diverse skill set. Larger teams working in more complex environments comes with an inevitable increase in risk, particularly when driving change in austere environments. This progress needs to needs to be supported by suitable regulatory, legal and governance frameworks that are supportive to patient safety and shared learning. Similarly, consideration is needed on the current pressures facing doctors in the NHS, with cancellations of elective lists impacting training, and understaffing and rota gaps significantly impacting on patient safety.

We urge the RCS to take an active role in advocating for change to make the NHS a better place to work for doctors, and a safer place for patients. Let's make the future brighter and safer.

Summary

ASiT welcomes the College's Commission on the Future of Surgery. In order to achieve maximum impact for patients, trainees, and surgeons, we believe that:

- The active involvement of trainees and their representatives is vital

- The consideration of future surgical technologies must include a coordinated strategy for implementation, integration, and dissemination to consultants and trainees
- Past attempts to improve the use of simulation have failed and the reasons for this should be analysed and corrected
- Consideration of the wider environment in which surgeons work, including the current medico legal framework is important

ASiT would be happy to work together directly with the Commission as a trainee representative body; this could potentially include:

- Focus or consensus group on enablers and barriers to exposure, training, and adoption of surgical technologies amongst surgical trainees
- Work on how to foster innovation and early adoption amongst the next generation of surgeons
- A platform at the ASiT National Conference or other relevant fora for discussion at dissemination of the Commission's work
- Liaising with the Commission when reporting the results of the ASiT member survey on surgical simulation, innovation and technology later this year

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