Review of Selected National Surgical Curricula: Quantity is Not the Sole Marker of Quality

Pritam Singh, MBBS[*], *Rajesh Aggarwal, PhD*[*†], *and Ara Darzi, MD*[*]

[*]Division of Surgery, Department of Surgery & Cancer, Imperial College London, St. Mary's Hospital, London, United Kingdom; and [†]Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania

BACKGROUND: Despite marked global variations in length and structure of surgical training programs, their common end product is a trained surgeon capable of independent practice. If variations exist, yet the end product is similar, modifications to curricula could potentially enhance the quality and efficiency of surgical training. This review evaluates global general surgery training programs and compares their curricula against the established standards for assessment of curricula.

METHODS: A convenience sampling method was employed during an online search for nationally recognized general surgery curricula. Curricula of Australia, Canada, Hong Kong, the United Kingdom, and the United States of America were individually reviewed and subsequently evaluated against the General Medical Council's "Standards for curricula and assessment systems."

RESULTS: Postgraduate surgical training is completed in 5 years in Canada and the United States, whereas this takes a minimum of 7, 7, and 10 years in Australia, Hong Kong, and the United Kingdom, respectively. However, when their general surgery curricula are objectively compared, they are remarkably similar. The principle disparities noted were in documentation and standardization of the structured in-training assessment system.

CONCLUSIONS: This review highlights variations in the structure of general surgery training programs globally. There is a need for an objective method to assess training quality, not reliant upon quantity alone. An evidence-based approach is the gold standard in patient care; it is essential to invest resources into developing an evidence-based curricular approach to ensure surgical training quality can be accurately evaluated to maintain and enhance the standards. (J Surg 71:229-240. © 2014 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: curriculum, surgery, training, residency

COMPETENCIES: Medical Knowledge, Practice-Based Learning and Improvement, Professionalism

INTRODUCTION

There are marked global variations in surgical training programs. The most marked of these are differences in the lengths of training programs. In some countries surgeons are trained in half the time it takes a surgeon to be trained in another country. Despite these variations, the common end product of these programs is a trained surgeon capable of independent practice. This is supported by evidence that surgeons trained in different countries under their respective training programs possess equivalent knowledge and technical skills.[1] It follows that if variations exist, and yet the end product is similar despite shorter training, then modifications to curricula have the potential to enhance the quality and efficiency of surgical training.

The challenge of providing a high-quality patient service, while simultaneously providing high-quality training for surgeons, is a global one. Training can be unintentionally hampered by politically driven financial incentives for service delivery. However, there is evidence that patient outcomes could be related to the quality of training received.[2] Therefore, improvements in surgical training could potentially lead to a higher-quality patient service. The Royal College of Surgeons of England have responded[3] to work with the Future Forum on education by highlighting that education and training of surgeons "*is fundamental to the delivery of quality and therefore patient safety both now and in the future*" and recommend "*the introduction of independent specialist scrutiny of training quality……*

Funding: Rajesh Aggarwal is funded by a Clinician Scientist Award from the National Institute of Health Research, Department of Health, UK.

Correspondence: Inquiries to Pritam Singh, MBBS, MA, MRCS, Division of Surgery, Department of Surgery & Cancer, Imperial College London, Academic Surgical Unit, 10th Floor QEQM, St. Mary's Hospital, South Wharf Road, London W2 1NY, UK; fax: (20) 33126309; e-mail: pritam.singh@imperial.ac.uk

  1931-7204/$30.00 http://dx.doi.org/10.1016/j.jsurg.2013.07.015

clear quality indicators to ensure that training opportunities are maximised."

There is renewed interest in postgraduate medical education.[4] This moment presents an important opportunity to improve the quality of surgical training through innovative and evidence-based recommendations. The search for innovation and evidence is a global issue, enlisting considerable effort and investment to enhance surgical practice.

The traditional response to calls for improved surgical training programs has been to increase the quantity of training by case volume or through duration of training. With this in mind, the Royal College of Surgeons of England have had a high-profile stance on the need to ease work-hour restrictions for surgical trainees.[5] In the US, where duty hours have also been restricted, there has been a growing disquiet among residents and interns about the effects of work-hour restrictions.[6,7] There is indeed a strong body of evidence that increased operative volume correlates with improved patient outcomes.[8] However, this work focused upon trained surgeons, and it may be an oversimplification to assume that increased volume is the sole marker of the quality of surgical training.

Although volume undoubtedly has a significant effect on surgical training, there is a need to explore innovative ways to maximize quality of training without simply relying upon increased caseload. The traditional Halstedian apprenticeship model is no longer acceptable to the public, and with the global pressure to reduce training hours, it is no longer feasible at an organizational level. In fact, there is evidence that despite a reduction in absolute numbers of patients seen, redesigning an internal-medicine residency program can have demonstrable training benefits.[9]

In the past decade, there has been a global drive to standardize national surgical training curricula and align these with the paradigm shift toward competency-based training. The objective of this narrative review is to compare surgical curricula from around the world and to identify variation. Identification of variations will permit evaluation of the strengths and weaknesses of surgical curricula. This could provide information on methods to improve curricula to efficiently and effectively deliver high-quality surgical training.

METHODS

A convenience sampling method was employed to conduct an online electronic search for nationally recognized general surgery curricula. The search resulted in curricula of Australia, Canada, Hong Kong, the United Kingdom, and the United States from the websites of their respective national surgical colleges.[10-14] An initial qualitative evaluation of the development and structure of each curriculum was performed.

To enable comparisons of the curricula using standardized criteria, a search was performed for an established set of objectives to evaluate the curricula against. The search identified the UK General Medical Council's (GMC) "Standards for curricula and assessment systems."[15] This consists of 17 standards grouped under 5 headings: planning, content, delivery, outcomes, and review. Each GMC standard consists of a number of subdivisions. For the purpose of this review, each curriculum was assessed against each standard and given a rating based on how well the curriculum met the GMC standard:

- meets the standard,
- meets the majority of description of the standard,
- meets some of the description of the standard, and
- either does not state the information required or does not meet the standard.

To meet the majority of the standard, the a priori definition was that the curricula had to meet 50% or more of the subdivisions within the description of the standard.

The results are presented as 2 sections with an initial overview of each curriculum in the first section. This is then followed by comparisons across the curricula with respect to each of the GMCs standards. The surgical training pathways for each country are demonstrated in Fig. 1 while postgraduate competitive entry points into surgical training and mandatory examinations are demonstrated in Fig. 2.

RESULTS

Australian Surgical Curriculum

General Surgeons Australia (GSA) collaborates with the Royal Australasian College of Surgeons to deliver training in Australia through the SET Training Program. The GSA curriculum[13] consists of 14 technical and 6 nontechnical

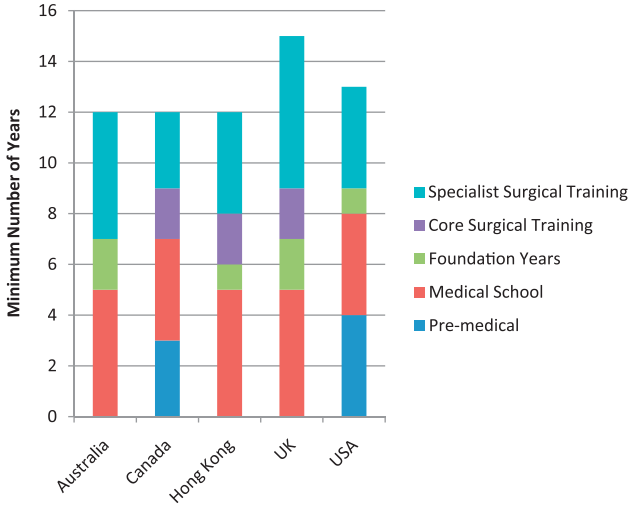

FIGURE 1. Surgical training pathway.