ABSTRACT

Objectives: To develop operative log growth charts for otolaryngology training in an international program, to use these growth charts to critically assess sufficiency of cases and parity of cases between residents and to compare these growth charts to available international standards for minimum case numbers.

Methods: Operative Log Growth Charts were developed for key indicator procedures for graduating otolaryngology residents in 2012-2014 at a large teaching hospital in the capital city of a newly industrialized country. Comparisons were made between years of training and to required minimum case numbers published by the ACGME RRC for Otolaryngology.

Results: Data was available to create 7 key indicator operative log growth charts to include all available data from 2012-2014 residents. These growth charts were used to assess growth in operative procedures for residents in the program compared to historical norms in the program. Graduating residents surpassed ACGME minimum case numbers in Bronchoscopy only were below the minimum numbers for the other key indicators tested.

Conclusions: There is significant heterogeneity in the standards for otolaryngology training between countries. It is possible to develop program-specific and country-specific operative log growth charts. While case exposure is not the equivalent of educational quality, a minimum exposure is essential for training. These growth charts may be used within a program to assess individual resident progress, to assess the effect of programmatic changes to duration of training or resident complement in real-time, and to compare case exposure to standards in other countries.

INTRODUCTION

Anecdotally, there is significant variance in case exposure between training programs on an international level. However, little data exists to quantify such differences in otolaryngology training. While case numbers are not a proxy for quality of education, a minimum exposure to certain key procedures may serve as a necessary baseline target. In recent years, the ability to obtain ACGME international standardization offers a step towards the development of a minimum international standard for residency training.

Programs interested in improving case exposure must meticulously document and analyze resident operative logs. We offer one method for documenting case exposure over time, similar to a pediatric growth chart. Comparison can be made to the minimum case numbers for otolaryngology residency training published by the ACGME.

This study addresses the comparative standard minimum operative case numbers from the ACGME to the operative log growth charts for general otolaryngology training at Siriraj Hospital Mahidol University for 2012-2014 graduating residents.

METHODS

The sample of this study included residents who attended Otorhinolaryngology specialty residency training program in Siriraj Hospital, Thailand and graduated between 2012-2014 academic years. The data was collected regarding the total operative cases of residents in each year and divided by the number of residents per year to obtain an average case number for all available key indicator procedures by post-graduate year of training.

The Operative Log growth Charts were graphed for each key indicator procedure using a curve of best fit and compared to the published minimum case numbers published by the ACGME for each procedure.

Key indicator data was available for Parotidectomy, Neck Dissection, Thyroidectomy, Mastoidectomy, Tympanoplasty, Endoscopic Sinus Surgery (Ethmoidectomy), and Bronchoscopy. Thus seven operative log growth chart graphs were developed.

RESULTS

On each Operative Log Growth Chart, the vertical axis represents the number of operative cases as primary surgeon or supervising surgeon, and the horizontal axis represents the post-graduate year of residency training. The average numbers of operative cases in each year of Siriraj hospital residents were plotted for each of the three graduate classes (2012-2014). In comparison with the minimum cases for graduating residents in the US program, deficiencies in several key indicator procedures was readily noted (Fig 1 & 2). There was a lack of 6 cases in Tympanoplasty, 10 in Mastoidectomy, 34 in ESS, 20 in Neck Dissection, 6 in Parotidectomy, 4 in Thyroidectomy, and no difference in Bronchoscopy.

There were statistically significant differences between the operational cases of Siriraj hospital medical school and the US program minimum in all key indicator cases except Bronchoscopy.

CONCLUSIONS

Quantitative comparison of key indicator cases between international programs provides an essential starting point for improving international standards in otolaryngology training. Such a comparison provides an opportunity to consider methods for increasing case numbers, such as expanding the residency program to include other clinical sites or decreasing resident complement.

Developing program specific Operative Log Growth Charts may allow real-time monitoring of such changes. Partnerships between established programs in industrialized countries and those in newly industrialized countries may serve a valuable resource for both partners.

In addition to the monitoring of programmatic changes, Operative Log Growth Charts may be used within a program to assess resident progress, parity of cases, and sufficiency of cases.

We hope that this type of comparison may serve as a model for making programmatic improvements on an international level.

REFERENCES