

Comparison between ACGME Review Committees for General Surgery and Internal Medicine in Assignment of Program Cycle Length

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Abstract - Accreditation information for each residency training program is mostly confidential, but program directors and other stakeholders can draw some conclusions from what is available on www.acgme.org. The primary objective of this analysis was to compare the decisions of the Review Committees for General Surgery and Internal Medicine regarding assignment of program cycle length. Cycle length is the time between the Review Committee's decision on accreditation and the scheduled next site review. The ACGME considers cycle length to be a measure of program compliance with requirements. The secondary objective was to ascertain the value of the information available on the website for predicting program success, again measured by cycle length. A snapshot sample of cycle lengths assigned and other program information available for each program from the ACGME website as of July, 2005, was accessed. Data for Internal Medicine and General Surgery programs were downloaded and compared. Cycle length was normally distributed for General Surgery, with a mean of three years; however, cycle length was an increasing ramp function for Internal Medicine, with a minimum of programs at one year and a maximum at five years. The percent of programs at each cycle length was not different between specialties for cycle lengths of 1, 2, or 3 years, but differed significantly for cycle lengths of 4 and 5 years, with the longer cycle lengths having a higher percentage of Internal Medicine programs ($p=0.001$, $X^2=88.11$). None of the program information available on the website was predictive of cycle length. Review Committees for Internal Medicine and General Surgery differ in allocation of program cycle length. This difference may decrease with increased transparency, information exchange between Review Committees, and public accountability. Provision of more information to stakeholders by the ACGME may permit an analysis of significant predictors of positive outcome.

The American College of Graduate Education (ACGME) was established in 1981 as an independent private organization to provide accreditation for residency training programs. The ACGME delegates to the Review Committees the responsibility for drafting training program requirements and for reviewing programs for substantial compliance with the requirements. The ACGME is responsible for the final accreditation decisions. However, the extent to which the separate specialty Review Committees consistently develop and apply both general and specialty-specific program requirements as approved by the ACGME is difficult to determine from the information that is provided by the ACGME. Although there is a Monitoring Committee established by the ACGME to assess Review Committee performance,¹ the activities of the Monitoring Committee are not transparent to stakeholders, such as program

directors, departmental chairs, faculty, and residents. The ACGME provides some relevant data on its website (www.acgme.org), including each program's cycle length, which is the time from accreditation decision until the next scheduled review. Cycle length is a measure of the degree to which each Review Committee perceives program compliance to program requirements.² The primary goal of this analysis was to examine the decision patterns indicated by the distribution of cycle length as established by two separate Review Committees, General Surgery and Internal Medicine, and to examine these decision patterns for consistency. A secondary goal was to see if any of the program information provided by the ACGME on its website could be used to predict program success as measured by cycle length.

Table 1. Program Information from www.acgme.org

Specialty	Internal Medicine	General Surgery	t-Statistic, p-value
Teaching Staff	55.7 ± 80.2 (370)	24.9 ± 19.3 (243)	7.09, p<0.001
Approved Positions	62.3 ± 38.6 (387)	33.1 ± 18.0 (252)	12.91, p<0.001
Filled Positions	56.7 ± 35.8 (385)	29.7 ± 15.6 (252)	13.04, p<0.001
Faculty-resident Ratio	0.93 ± 1.01 (370)	0.86 ± 0.62 (243)	1.01, p=0.312
Fill Ratio	0.911 ± 0.098 (385)	0.917 ± 0.114 (252)	-0.70, p=0.484
Cycle Length (years)	3.7 ± 1.2 (383)	2.9 ± 1.1 (241)	9.08, p<0.001

Values are mean ± SD (n).

Methods

A snapshot of all data from the 640 residency training programs (388 Internal Medicine and 252 General Surgery) were obtained from the ACGME website, www.acgme.org, in July, 2005. All programs are included; however, the data represent a snapshot in time to sample the process. Data recorded from each program included specialty (Internal Medicine or General Surgery), date of last review, date of next scheduled site survey, number of faculty, number of approved residency slots, and number of filled residency slots. Cycle length was calculated as the difference (in years) between the last review and the next scheduled site survey for each program. Cycle lengths less than one year were rounded up to one; those greater than five years were rounded down to five. Secondary variables of interest included faculty-resident ratio and fill ratio. Faculty-resident ratio was calculated by dividing number of faculty by number of filled residency positions. Fill ratio was calculated by dividing the number of filled residency positions by the number of approved residency positions. Levene's test for equality of variances and Student's t-test for grouped data were used to compare staffing, number of approved residency slots, number of filled residency slots, faculty-resident ratio, and fill ratio between Internal Medicine programs and General Surgery programs. Chi-square analysis was used to examine the relationship between specialty and number of programs at each cycle length. Stepwise linear regression was used to test for effect of specialty, cycle length, number of faculty, number of filled resident slots, number of available resident slots, faculty-resident ratio, and fill ratio on cycle length. The statistical computer package used for the analysis was SPSS™ Version 14.0 (Chicago, Illinois, USA).

Results

Table 1 lists the summary statistics for number of teaching staff, approved positions, and filled positions, as well as the calculated faculty-resident ratio, fill ratio and cycle time, broken down by specialty. Differences

in number of programs used to calculate these descriptors result from missing data for some programs on www.acgme.org. All data were normally distributed except for the distribution of cycle length for Internal Medicine. Significant differences between Internal Medicine Programs and General Surgery Programs were found in number of teaching staff (p<0.001), number of approved positions (p<0.001), and number of filled positions (p<0.001), with Internal Medicine having higher numbers of each. No significant differences were found with either the faculty-resident ratio, which was less than one in both specialties, or the fill ratio, which showed that over 91% of the slots were filled in both specialties. Cycle length mean ± standard deviation was 3.7 ± 1.2 years for Internal Medicine, compared to 2.9 ± 1.1 years for General Surgery (p<0.001). Because cycle length for Internal Medicine was not normally distributed, the Mann-Whitney U test was also done for comparison of means (p<0.001).

Figure 1 shows the cycle length distribution for residency training programs in Internal Medicine and General Surgery. There is a linear increase in number of Internal-Medicine programs at each cycle length, culminating in more programs assigned a cycle length of five years (the maximum) than any other cycle length. However, the distribution of programs by cycle length for General-Surgery programs is normal, with a median cycle length of three years.

Figure 2 shows the percent of programs assigned the same cycle length, broken down by specialty. The Review Committees for Internal Medicine and General Surgery exhibit similar allocation of programs for cycle lengths of 1, 2 and 3 years (p=0.195, X²=1.68). However, the percent of allocated programs by specialty at each cycle length diverges significantly for cycle lengths of 4 and 5 years (p=0.001, X²=88.11).

Stepwise linear regression with cycle length as the dependent variable and number of staff, approved slots, filled slots, faculty-resident ratio, and fill ratio as

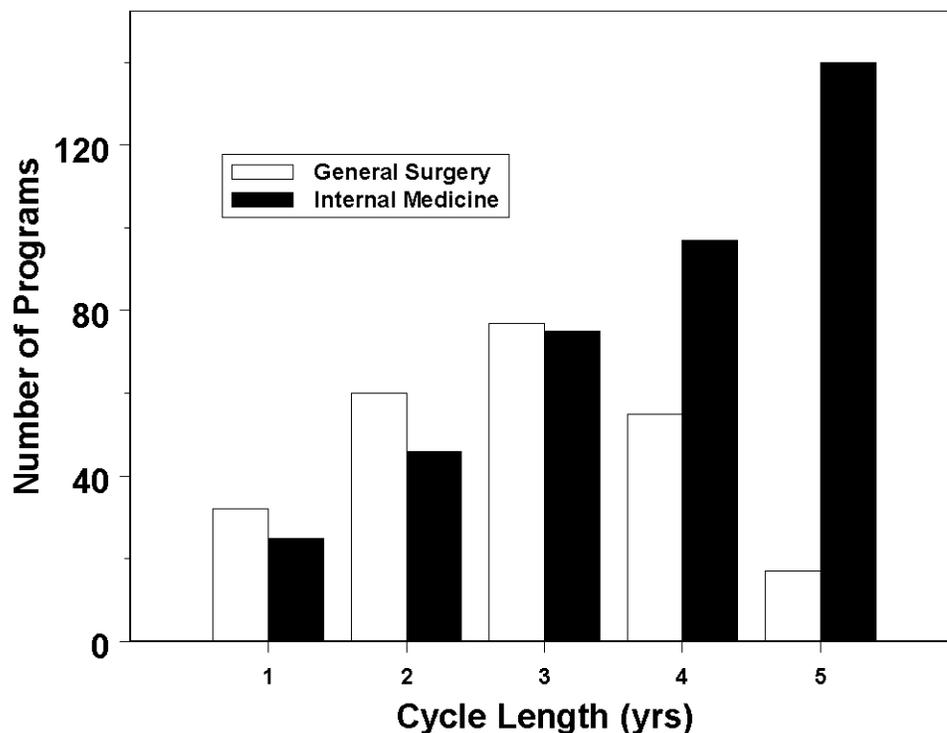


Figure 1. Cycle Length by Specialty. Cycle length distribution of residency training programs for Internal Medicine vs General Surgery. There is a linear increase in number of Internal-Medicine programs at each cycle length, culminating in more programs assigned a cycle length of five years (the maximum) than any other cycle length. However, the distribution of programs by cycle length for General-Surgery programs is normal, with a mean cycle length of three years.

potential predictive variables revealed that none of these variables were significantly predictive of cycle length for either specialty. At an entrance significance requirement of $p < 0.05$, none of the variables achieved the level of statistical significance to be entered into the regression equation.

Discussion

All ACGME programs are reviewed at least every five years, and many are reviewed more frequently. Thus, a snapshot view of the data available in July, 2005, represents a sample output of the process used in decision making. Thus, statistical inference is warranted in attempting to address our primary goal, which was to ascertain the consistency of the decision-making process. Although data for all ACGME specialty training programs are available at www.acgme.org, General Surgery and Internal Medicine were selected for analysis because these two represent the largest number of data points, so statistical analysis of the data would maximize the statistical power of the analysis. Our secondary goal was

to ascertain whether or not the any of the data provided by ACGME was helpful in predicting program success as measured by cycle length. It was apparent from this analysis that the ACGME could provide more program data to help programs develop best practices.

The differences observed in number of teaching staff and residency slots between Internal Medicine programs and Surgery programs are easy to explain because Internal Medicine programs are bigger than Surgery programs. However, differences in the distribution of cycle length are less easily explained, since this measure refers to degree of program compliance with specified ACGME requirements.

These two Review Committees exhibit different decision patterns. Admittedly, Review Committees are composed of people, and the decisions that different people make can vary significantly. However, a primary objective of any accreditation process is to assure that there is as much consistency as possible demonstrated in accreditation decisions. Consistency is related to

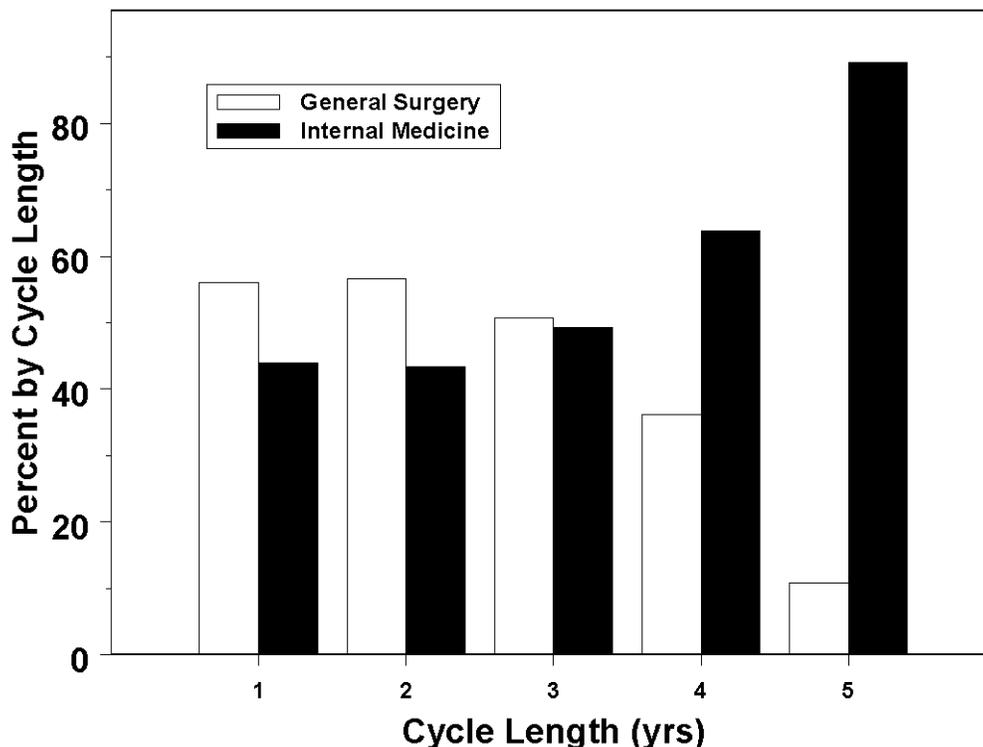


Figure 2. Specialty by Cycle Length. The percent of programs from each specialty assigned the same cycle length. The Review Committees for Internal Medicine and General Surgery exhibit similar decision patterns for allocation of cycle lengths of 1, 2 and 3 years ($X^2=1.68$, $p=0.195$). However, the decision patterns diverge significantly for cycle lengths of 4 and 5 years ($X^2=88.11$, $p=0.001$).

quality of programs, and cycle length is the best available measurement currently provided by the ACGME. Of course, all specialties undergo periods of greater and less resident (and faculty) performance, but this would be manifested by a shift in the cycle-length curves to the left or the right, not a different distribution pattern.

The ACGME has recognized the objective of consistency and has set up an oversight committee called the ACGME Monitoring Committee. The Monitoring Committee is charged to (1) encourage consistency of review processes within and between Review Committees and (2) encourage consistency of accreditation based on quality of programs within a specialty. However, the Chair of that committee has recently reported that with over 8,000 residency programs, 26 specialties, and 84 subspecialties and transitional programs, “The challenge to be clear, comprehensive and consistent in all reviews and communications is serious, indeed.”¹ Direct and transparent interchange of information between committees may be a more productive approach.

It is not clear from the data available that either Review Committee has the better decision process. Decisions made in isolated silos may be expected to

exhibit diverging patterns unless there is transparency of process and accountability for results. Type I and Type II measurement errors are minimized by public review, and measurement decisions are improved by accountability. The ACGME has already taken a giant step in providing publicly available accreditation information on its website. However, the amount of information currently available is still minimal and does not provide stakeholders with enough quantitative information that could be used in either assessing the internal consistency of the Review Committees or assessing predictors of cycle length. There is already a section on the ACGME website designed specifically for stakeholder use. It is accessible only by knowing the program’s identification number and password. It would not be a very big step to provide information associating programs and program traits with cycle length. This would allow stakeholders to analyze this information when decisions regarding program changes are to be made, as the Review Committee consistently incorporates these traits in its decision making.

The Executive Director of the ACGME, David Leach, emphasizes three directions for improvement in the performance of the Review Committees.³

1. The performance of Review Committees should be measured, because what we measure, we improve.
2. Review Committees should allow training programs more flexibility to adapt to their environments and available resources.
3. Review Committees need more public accountability.

Although there may be efforts in each of these three areas within the Review Committees, there is little transparency provided to allow residents, faculty, program directors, and the public to see what's going on. We only have the results, and the results appear to be inconsistent.

In *Crossing the Quality Chasm*, the need for shared knowledge and free flow of information and the need for transparency were presented as essential prerequisites for redesigning health care processes. Accreditation processes are indirectly addressed in the same reference as it is argued that "The 21st-century health care system described in this report cannot be achieved without substantial change in the current environment of regulation and oversight."⁴

A number of authors have critiqued the shortcomings of our current approach to accreditation and have argued for more accountability and societal responsiveness.^{5,6} Goroll et al., have argued for simplification of the accreditation process by incorporating a continuous evaluation of outcome with the provision of more liberty to individual programs to develop innovative approaches.⁷ They also suggest that the licensure and outcome exams for accreditation could be combined, resulting in significantly less duplication and waste of effort. With competency outcome quantitatively established, accountability and simplification would both result in more consistent decisions by the Review Committees.

How would an understanding of decision processes of the Review Committees help individual programs? How would insight into program traits related to success help individual training programs? The answers may be understood in the context of the complex adaptive system (CAS).⁸ A CAS may be modeled as a genetic algorithm that mimics evolution. When traits associated with survival are transparent and consistently applied, those organisms with the trait survive and multiply; those without it don't survive and do not multiply. Genetic algorithm models have found successful applications in management,⁹ sociology,¹⁰ health care,¹¹ and medical education.⁸ In order for the CAS approach to work for Review Committees, there must be crossover, which means each committee needs to know what traits the other

committees have adapted, and how successful these traits are. In order for the CAS approach to work for training programs, information must be made available regarding those traits associated with longer cycle length. The information that is currently available on the ACGME website is not sufficient for this purpose.

With more emphasis on outcome, the ACGME has decreased its emphasis on process and rightly so, because there was no evidence that associated many of the prescribed processes to outcomes. However, in the context of the genetic algorithm the ACGME could make both process and outcome information easily available to stakeholders and then let those stakeholders adapt to their environments with those process traits that have been shown to result in the most successful outcome.

The Review Committee for Internal Medicine has recognized the problem of program requirements increasing in number and complexity.¹² They have proposed a pilot program called the Educational Innovations Project (EIP) that minimizes program requirements and allows variability at the program level with free interchange of information. Allowing variability is especially important for the genetic algorithm, and the transparency permits programs to adopt successful traits. Unfortunately, this pilot program is only available to programs that have already excelled with the status quo as indicated by long cycle lengths. Perhaps it would be better to randomly distribute such a pilot project to programs of all cycle lengths to get a true measure of how such a process would benefit the entire system.

Consistency among the Review Committees in allocation of cycle length is important. Degree of compliance to program requirements should not be a function of specialty; however, it should be a direct correlate to quality of training. If quality of training in an entire specialty is less than the quality of training in another specialty, this is an important issue that needs to be addressed. In order to provide more consistency in the decision process for allocation of program cycle length, we recommend better information interchange among Review Committees. This would be accomplished if

- Members of Review Committees rotate to Review Committees of other specialties.
- Members of the Monitoring Committee sit in on Review Committee meetings and rotate among the specialties, providing crossover for consistency and improvement as well as assuring internal consistency and providing transparency and accountability.
- Members of other Review Committees or lay

representatives sit on appeals boards, rather than professional acquaintances of the members of the Review Committee making the original accreditation decision. This, too, strengthens transparency and accountability.

We applaud the efforts that the ACGME has made so far in providing information about program cycle length, as well as a small number of program variables, on its website. However, none of the variables provided were associated with outcomes. We encourage the ACGME to provide more program information so that stakeholders have access to measured information associated with program performance.

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Disclosures

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