Is Our Residency Program Successful? Structuring an Outcomes Assessment System as a Component of Program Evaluation

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OBJECTIVE: In an attempt to better define the success of our residency program with regard to resident development, we committed to develop an ongoing assessment of residency performance and devised an outcomes assessment system.

DESIGN: We describe the process and structure that we used to construct an outcomes assessment system. We discuss the process we used to discern whether or not our program is successful as well as offer tips on what data to collect and track should other residency programs decide to devise a similar outcomes assessment database.

CONCLUSION: Taking time to "step back" to take inventory of a residency program and ensure year over year and at the end of training residents have developed and matured as planned is an educationally sound practice. Structuring an outcomes assessment system like the one that we discuss here can aid program directors with this important task. (J Surg 71:73-78. © 2014 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: program evaluation, outcomes, assessment, residency

COMPETENCIES: Medical Knowledge, Patient Care, Professionalism, Interpersonal and Communication Skills, Practice-Based Learning and Improvement, Systems-Based Practice

INTRODUCTION

Ask any surgical residency program director, "is your residency program successful?" and the response would likely be a halting and hesitant "yes." That would likely be followed by a fairly subjective response tied to the quality of resident applicants and PG-1s, the clinical practice experience and opportunities, the number of residents going on to fellowship, and the number staying in the community or similar metrics, which are all valid and important markers. Realistically though, most program directors are responding to a gut feel about their programs. How well are program success goals really defined, tracked, and evaluated year to year? How is your program trending year over year? Can you tell if it is getting better or is there something that is holding it back?

Residency programs run on an annual cycle. Residents enter, residents leave. The orientation repeats itself year to year. On-call schedules, general curriculum, lectures, grand rounds, and rotations all tend to carry over year to year. With all the effort and busyness required to administer a program, it is tempting to allow as much as possible to go on autopilot. The challenge for program directors is to define what the program wants to accomplish year to year and evaluate how successfully those accomplishments are being realized. This critical part of the role is not automatic and needs definition and periodic objective evaluation and maybe redefinition.

The Accreditation Council for Graduate Medical Education (ACGME) requires that each program evaluate itself. Evaluation methodology varies widely among residency programs.[1-5] Just as important as evaluating a program, though, is identifying deficiencies and creating strategies to improve flawed processes and weak outcomes.

In recent years, the ACGME has mandated that residency programs prove their worth and assess the actual accomplishments of their residents via program outcomes. Although "structure" and "process" components still need to be in place to deem a program worthy of having the potential to educate residents, now the focus for programs must be on assessing education outcomes—the results of the structure and processes that are in place.[6]

In an attempt to better define the success of our residency program with regard to resident development, we committed to develop an ongoing assessment of residency performance, and objectively report the actual accomplishments of our residents. As a starting point, we adopted a framework for program evaluation of a residency program or clerkship by Durning et al.[5] Their 3-phase framework emphasizes

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relationships among "baseline," "process," and "product" measurements, or for simplicity, "Before," "During," and "After" measurements. "Before" data incorporates performance outcome data about learners before they enter residency. The authors emphasize the importance of collecting baseline measures as a way to "correct" or "control" for determining the effect of the program. "During" data emphasize the role of performance outcomes about trainees during residency. "After" data are the performance outcomes of each resident after they graduate.

Using the proposed framework of Durning et al.[5] we devised an outcomes assessment database as a component of program evaluation for the Indiana University general surgery residency using "Before" data from intern applicant files, "During" (process) data from curricular results while in training, and "After" (product) data from program outcomes. Data were collected on our general surgery residents who began training in 1998 and later and graduated during the years 2005 to 2012.

The purpose of this article is 3-fold: (1) to describe the process and structure that we used to construct an outcomes assessment system for our general surgery residency using the framework proposed by Durning et al.,[5] (2) to discuss the process we used to discern whether or not our program is successful, and (3) to offer tips on what data to collect and track, should other programs decide to devise a similar outcomes assessment database.

PROCESS AND STRUCTURE OF CONSTRUCTING AN OUTCOMES ASSESSMENT DATABASE

The outcomes assessment database was created using Excel. Sheet 1 was labeled as "Before Data." In the first column, the names of each of our graduated residents from 2005 to 2012 were listed by class. The "Before" performance data ascertained from their intern applicant spreadsheets can be seen in Table 1. We then color coded each "Before" data column based on which ACGME competency the criterion most represented.

TABLE 1. "Before" Data Used in the Outcomes Assessment Database

1. No. of publications
2. United States Medical Licensing Examination Step 1 scores
3. United States Medical Licensing Examination Step 2 scores
4. Alpha Omega Alpha member or non-member
5. Junior surgery clerkship grade
6. Chairperson letter of recommendation score
7. Overall faculty score on intern applicant interview evaluation
8. Overall resident score on intern applicant interview evaluation

Similarly, we labeled Sheet 2 as "During Data." The names of our graduates were relisted in the first column and then in the next column, we identified each resident as matched categorical, preliminary, or transfer. The next 16 columns were filled with outcome data that we gathered from various files, meeting minutes, evaluations, and reports that contained the results of how our residents performed while they were training. The "During" data that we utilized can be seen in Table 2. Again, we color coded each "During" data column based on which ACGME competency the criterion most represented.

Finally, Sheet 3 was labeled as "After Data." The names of the graduates were relisted in the first column. The "After" data that we utilized can be seen in Table 3. We then color coded each "After" data column based on which ACGME competency the criterion most represented.

Once the Excel database was complete, we did an initial analysis of the data. It was a bit tedious switching back and forth among Excel sheets so as to simplify things; we used the template that Durning et al.[5] proposed and collapsed our performance outcome activities into the grid illustrated in Table 4. The actual data of the performance outcomes for each resident, however, remained in the Excel database. To get a more in-depth understanding about the data, each Excel column was coded so that a biostatistician could run general statistics and issue a summary. The summary contained frequency statistics for each data column as well as correlation statistics and multivariable prediction models.

PROCESS USED TO DISCERN WHETHER OR NOT OUR PROGRAM IS SUCCESSFUL

To answer the question, "Is our residency program successful?," we defined success by using our general surgery residency mission statement as our "yardstick." Our assumption was that if we were fulfilling our mission statement, then we were showing evidence of success. Other potential "yardsticks" programs can use to define success can be overall achievement of program goals, consistency with a vision statement, or perhaps convening a focus group of faculty charged with identifying criteria for success. Of emphasis, this step in defining success should be an early step in the process to direct what data to collect and which assessments to conduct.

Our mission statement reads as follows—The mission of the Indiana University General Surgery Residency Program is 3-fold: to develop excellent general surgical clinicians who are equipped with the competencies essential for providing high standard of care to the citizens of Indiana; to advance the surgical sciences through research; and to instill leadership qualities that will empower our graduates to function exceptionally in all practice settings.

We broke down our mission statement into 3 parts and analyzed the frequency data of the performance outcomes.