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AOA Critical Issues

Challenges in Resident Education: Is the Next Accreditation System (NAS) the Answer?

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Seven specialties, including orthopaedic surgery, started the Next Accreditation System (NAS) in July 2013. Changes to program accreditation in NAS include milestones, emphasis on case-log procedural minimums, continuous data assessment, greater institutional oversight, eliminating the program information form (“PIF”), and fewer and different types of site visits. In the traditional accreditation process, emphasis was placed on process and the details of the administration of educational programs. In the NAS, the accreditation process will emphasize measurable and meaningful outcomes of educational programs.

The Residency Review Committee (RRC) will review each program’s annually submitted data, supplemented by reports of self-study visits every ten years, and, when requested by the RRC, progress reports and site visit reports. The RRC will evaluate comparative data between programs and within programs and will look for trends that have occurred over the years. Within these data elements, tools have been developed and weighted that will provide screening criteria for program performance. Board scores,

the resident survey, and procedural experiences will be weighted more heavily than other data elements.

Case logs will be a critical element of NAS data analysis. The RRC has required that finishing residents log between 1000 and 3000 total codes. In the NAS, these self-reported procedural experiences will be assessed in more detail. The RRC will assess program percentile ranked data as compared with national norms in anatomic areas. Procedural minimums for thirteen procedures and overall pediatric and oncology cases have been developed by the RRC. The minimums in these fifteen areas will be used as one of the critical data elements and will be the primary procedural experience screening tool. Residents who finished the program the previous year will be expected to have met procedural minimums. The degree to which a program deviates from this expectation will be screened against national data.

The milestones will become the major assessment tool in orthopaedic surgical resident education. They are designed to

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assess program outcomes by assigning to each resident a standardized level of progress: novice (level 1), advanced beginner (level 2), competent (level 3), proficient (level 4), or expert (level 5). Entry-level residents are expected to be at level 1, and finishing residents, at level 4. There are sixteen orthopaedic clinical areas, each of which is associated with a medical knowledge and patient care milestone. The other competencies (i.e., professionalism, practice-based learning and improvement, systems-based practice, and interpersonal and communication skills) will also be evaluated in the milestone framework and are associated with nine total milestones. The NAS will present a tremendous amount of work to implement. Providing optimal program oversight will be difficult for a few years. However, the system has potential, and some of the assessments are promising. With less intrusive review requirements, accreditation under the NAS may be easier for many programs, and shifting from process assessment to outcome assessment may prove to be a positive step to a better accreditation process.

Oversight of graduate medical education in orthopaedic surgery by the Accreditation Council for Graduate Medical Education (ACGME) and the Residency Review Committee (RRC) is changing dramatically. On July 1, 2013, seven specialties, including orthopaedic surgery, started the Next Accreditation System (NAS). Changes to program accreditation in the NAS include milestones, emphasis on case-log procedural minimums, continuous data assessment, greater institutional oversight, eliminating the program information form ("PIF"), and fewer and different types of site visits. A symposium regarding this change was held at the 2013 Annual Meeting of the American Orthopaedic Association¹. The goals of this symposium were to present the ACGME rationale, explain the new system, and assess the likely advantages and disadvantages from the perspective of the ACGME, the RRC, and orthopaedic program directors. According to the ACGME, one of the key features of the NAS is to decrease the burden of accreditation for programs. However, during the symposium, the audience, many of whom were program directors, did not think that was very likely. During audience response questions, they were asked what effect the NAS would have on the time, effort, expense, and overall burden of accreditation compared with the current accreditation system. Ninety-one percent thought that it would increase the burden, and 73% thought that it would be a large increase. This difference of opinion between the ACGME and orthopaedic program directors will be presented in this article.

ACGME Background and Rationale

The background and rationale for the NAS are described in detail in an article by Nasca et al.². The NAS emerged in response to simultaneous forces from three directions: the public, the graduate medical education community, and the Board of Directors of the ACGME. Graduate medical education is a public trust, so the ACGME is accountable to the public. The public expects the profession to train physicians to provide appropriate patient care to current and future generations. The public supports graduate medical education with almost

ten billion dollars through Medicare, Medicaid, the Veterans Administration, and, to a lesser extent, other sources, including state governments. The public expectations for graduate medical education are expressed through both government-sponsored and private organizations, including the Medicare Payment Advisory Commission (MedPAC), the Council on Graduate Medical Education (COGME), the Institute of Medicine of the National Academies, the Josiah Macy Jr. Foundation, and the Robert Wood Johnson Foundation. An amalgamation of the products of those entities indicates that the public wants physicians who are literate in health information technology, who use that technology to improve patient care, who are sensitive to cost-effective care, and who involve patients in their own care. These skills should be combined with the ideal personal, clinical, and professional attributes that have long been associated with physicians.

The first residency review committees were established in the early 1950s and pre-date the ACGME, which was established three decades later in 1981. The ACGME faced emerging formal programs in a burgeoning number of subspecialties and great variability in the quality of resident training. The ACGME emphasized program structure, the need for an increase in the quality and quantity of formal resident teaching, a balance between service and education, and a need for improvement in resident evaluation and feedback. Resident education was improved through these mechanisms, but the standards (i.e., program and institutional requirements) became increasingly prescriptive, with little latitude for programs to innovate, and fundamental changes in the health-care landscape were not addressed.

The ACGME Board of Directors at its November 2005 retreat endorsed four strategic priorities: (1) to foster innovation and improvement in the learning environment, (2) to increase the emphasis of the accreditation process on educational outcomes, (3) to increase efficiency and reduce the burden of accreditation, and (4) to improve communication and collaboration with key internal and external stakeholders. The NAS emerged as a program accreditation system to achieve these priorities.

Through the NAS, the ACGME will decrease the accreditation burden on programs and institutions. Programs will no longer need to complete program information forms every few years, and institutions will no longer have to complete institutional review documents. Programs and institutions will be freed from highly prescribed mid-cycle internal reviews. Currently, the program and institutional requirements are revised every five years and programs and institutions must make numerous corresponding changes in their policies and procedures. This will now occur only every ten years. In the traditional accreditation process, emphasis was placed on process and the details of the administration of educational programs. In the NAS, the accreditation process will emphasize measurable and meaningful outcomes of educational programs. With use of the milestones, resident and fellow competence will—for the first time—be quantified, greatly enhancing accountability to the public.

TABLE I Trended and Weighted Performance Metrics That Will Be Used in the NAS

Program data: annual Accreditation Data System (ADS) update (i.e., an update on structure and resources, attrition, and leadership changes)
Resident and faculty scholarship (new template)
Clinical experience (enhanced case logs)
Resident survey (new questions)
Faculty survey (new)
Semiannual resident evaluation on milestones (new) with a Clinical Competency Committee (new)
Rolling board pass rates (Parts I and II)
Program self-study (new) and site visit (every ten years)

Implementation of the RRC

Previous RRC Accreditation

The RRC accredits 154 core orthopaedic programs and 248 subspecialty programs. In the academic year 2011 to 2012, forty-one of the 154 core programs and seventy-three of the 248 subspecialty programs were reviewed. In traditional program reviews, the program director prepared an extensive program information form covering common and specialty-specific requirements, and that form was then sent to the ACGME and to an assigned site visitor. The duration of the site visit was one to two days, after which the site visitor prepared a report on the basis of the findings. The RRC reviewed the program information form, the site visitor report, and other data (e.g., board pass rates, resident survey information, and case logs). The RRC actions could be initial or continued accreditation, with or without citations, and implementation of a one to five-year cycle for renewal of accreditation. The committee could request a progress report and could propose probation for programs having a large number of citations.

NAS Overview—RRC Perspective

The NAS substantially changes program oversight, including a change in focus and function of the RRC to become more educational and less regulatory. During 2012 to 2013, the RRC prepared to convert Phase-1 program accreditation to the NAS in July of 2013. Milestones for orthopaedic surgery have been developed, and the data elements used in the NAS have been extensively reviewed.

The NAS will accredit programs without the use of many elements of the previous accreditation system (e.g., mandated site visits, program information forms, 100% mandatory adherence to program requirements, and direct interview of residents by a site visitor). The NAS will be based on annual or semiannual data review, with performance metrics within the data elements and with an emphasis on outcome data (Table I).

Program review will be more nimble, with more immediate feedback to programs. If data review indicates that there is a problem, the RRC will immediately assess the program and, if necessary, order a site visit and ensure that the problem is fixed, which should improve program outcomes. Programs for

which data review does not indicate problems and for which outcomes are satisfactory will have less intrusive oversight from the RRC, allowing innovation to further advance the program.

Program Requirements in the NAS—Core, Detail, and Outcome

The RRC has prepared for the NAS by changing the program requirements. Each individual requirement is now labeled as belonging to one of three different categories. Outcome program requirements are statements that specify expected measurable or observable attributes (knowledge, abilities, skills, or attitudes) of residents or fellows at key stages of their graduate medical education. Core program requirements are statements that define structure, resource, or process elements that are essential to every graduate medical education program. Core requirements must be met, as specified, on a yearly basis. Detail program requirements describe one specific structure, resource, or process for achieving compliance with a core requirement. Programs with a status of “continued accreditation”—meaning that they are in substantial compliance with outcome and core program requirements—will not be assessed for compliance with detail requirements and will be free to innovate while satisfying the core and outcome requirements. Programs that are not in substantial compliance with outcome and core program requirements (that is, programs with the status of accreditation with warning or probationary accreditation) must adhere to the detail requirements, since doing so has been shown, over the years, to result in successfully complying with core and outcome requirements³ (Fig. 1). An example of a core program requirement is PR-V.B.1: “At least annually, the program must evaluate faculty performance, as it relates to the educational program.” An example of a detail requirement is PR-V.B.2: “These evaluations should include a review of the faculty’s clinical teaching abilities, commitment to the educational program, clinical knowledge, professionalism, and scholarly activities.” Faculty evaluation is required, but programs with the status of continued accreditation are free to determine how they perform those evaluations.

NAS Data Element Example (Case Logs)

Case logs will be a critical element of the NAS data analysis. The RRC has required that finishing residents log between 1000 and 3000 total codes. In the NAS, these self-reported procedural experiences will be assessed in more detail. The RRC will assess program percentile ranked data compared with national norms in anatomic areas. Procedural minimums for thirteen procedures and overall pediatric and oncology cases have been developed by the RRC. The minimums in these fifteen areas will be used as one of the critical data elements and will be the primary screening tool for the assessment of procedural experience. Residents who finished the program the previous year will be expected to have met the procedural minimums. The degree to which a program deviates from this expectation will be compared with national data.

The RRC has approved rules for residents to more uniformly log cases. Historically, the number of codes that residents

Fig. 1
Conceptual model of NAS: Programs with the status of continued accreditation are subject to review of only outcomes and core process measures. On the basis of that review, they may retain a status of continued accreditation or could be given the status of accreditation with warning or the status of probationary accreditation. Programs with either of those two statuses are subject to review of their compliance, with a review of outcomes, core process, and detail process. Programs applying for initial accreditation have no outcomes, so they are subject only to review of core process and detail process. (Reproduced with the permission of the Accreditation Council for Graduate Medical Education [ACGME]. Copyright 2014 © ACGME. Illustration and logo used with permission.)

enter for each case has been variable and not well defined. The RRC currently assesses the number of entered codes in a manner such that residents receive variable credit for the same procedural experience. The new rules require that residents enter as many codes as applicable for each case but that they also identify the primary code to be counted for procedural experience. Multiple index procedures on a patient during a single operation will be entered as separate cases; each case will be logged in separately. Two residents participating in a bilateral case will separately log the case. The primary code will count as one procedure for procedural minimums rather than allowing multiple logged codes to count as separate procedures for the same case. With this change, procedural experience will be more uniformly assessed.

The RRC has also defined that there will be two levels of resident involvement that will allow credit for case logs and toward procedural minimums. At level 1, a resident may be the primary or supervising resident surgeon. If primary, the resident performs key portions of the procedure. If supervising, the resident surgeon guides another resident through key portions of the procedure. When the resident acts as a supervising surgeon and another resident as the primary surgeon, both of the residents may log the case as level 1. Level 2 indicates an assisting resident surgeon. At this level, the resident is scrubbed in on the case, participates in the preoperative assessment and planning, and assists a more senior surgeon in the key portions and may

participate in opening or closing (or other non-key portions of the operation). Residents will receive case-log credit toward procedural minimums for either level 1 or level 2. Lesser involvement than these levels should not be logged as a case.

How Will Accreditation Actually Work in the NAS?

The work flow for the RRC will be new in the NAS. Programs will be accredited on the basis of the RRC review of each program's annually submitted data, supplemented by reports of self-study visits every ten years, and, when requested by the RRC, progress reports and site visits. The RRC will evaluate comparative data among programs and within programs, and data trends will be assessed over the years. Within these data elements, tools have been developed and weighted that will provide screening criteria for program performance. Board scores, resident survey, and procedural experiences will be weighted more heavily than other data elements. On the basis of this data, prior to the committee meeting, the RRC will have the options listed in Table II. Programs that meet all established performance thresholds (40% of programs) will receive a letter of continued accreditation. Programs that fail to meet one (30% of programs) or two (20% of programs) non-high-stakes performance indicators will receive a letter extending continued accreditation; the letter will note the deficiencies and needed areas for improvement. In these two categories, there will be no formal review by the RRC. Programs that fail to meet three to five

**TABLE II Options Available to the Residency Review
Committee (RRC) After Data Review**

Focused site visit
Full site visit
Request clarification or progress report
Send material out to the RRC for review prior to meeting
Grant continued: accreditation without further review

established performance indicators will be assigned two RRC reviewers, and the action will depend on their review. Programs that fail to meet six to nine performance indicators will automatically have a focused or full site visit. Programs in these latter two categories (10% of programs) will be reviewed by the RRC at its semiannual meeting along with requested progress reports or site-visit reports. At this meeting, the RRC will decide on program accreditation status actions. These actions are listed in Table III.

Site Visits in the NAS

The traditional site visit—occurring at least once every five years, guided by a program information form or institutional review document, and performed by a single site visitor—will no longer occur in the NAS. Site visits for most programs will occur less frequently and they will be structured very differently. In the NAS, there are two forms of site visits: focused and full. Focused site visits will be used in the following ways: (1) to assess selected aspects of a program or sponsoring institution that has been identified by a review committee as needing attention or follow-up on the basis of a review of annual accreditation information, (2) to evaluate the merits of a complaint against a program or institution, (3) as a means of diagnosing factors underlying deterioration in the performance of a program or institution as identified in review of annual accreditation information, and (4) to investigate an allegation of an egregious violation. A notice of only thirty days will be given before a focused site visit since minimal document preparation will be necessary and, in most instances, the visit will be conducted by a team of site visitors. Full site visits will be used to assess program or institutional compliance with all applicable requirements. Full site visits will review new programs that are applying for initial accreditation and programs at the end of initial accreditation periods. They will also review programs when annual accreditation information identifies issues or concerns across several areas. A special form of full site visit—the self-study visit—will take place once every ten years in every program. The self-study visit will be based on a comprehensive self-study that is performed by the program or institution; the self-study describes how that program or institution creates an effective learning and working environment leading to desired educational outcomes and analyses the program's or institution's strengths, weaknesses, and plans for improvement. Self-study visits may also be used to assess compliance with any or all applicable standards.

The self-study visit will simultaneously review the core specialty program and all of the subspecialty programs that are associated with that core program. Doing so ensures that limited resources for the core residency are taken into account when fellowship programs are started. It also ensures that there is an element of local oversight for fellowship programs and that evaluation and curriculum design resources of the core residency program are available to the subspecialty fellowship programs. Finally, it provides a mechanism for more efficient and effective site visits with minimal disruption to the work of the department. A minimum notice of sixty days will be given for full site visits and, in most instances, full site visits will be conducted by a team of two or more site visitors.

NAS and Milestones—from the Perspective of the Program Director

The last few years have produced major changes in residency education, including the eighty-hour work week (2003), introduction of the core competencies (2006), major changes to the rules for overnight call and supervision for postgraduate year 1 (PGY-1) (2011), and, finally, the complete overhaul and revamping of the PGY-1 year in orthopaedics to include six months of orthopaedic surgery, one month of basic surgical skills, and five months from the nonorthopaedic surgery domain (July 1, 2013). However, all of these fundamental and remarkable changes pale in comparison to the introduction of the NAS and milestones.

Residency program directors face increasing demands on their time, and several recent studies demonstrated that these new demands are leading to significant burnout and director turnover^{4,5}. In a study investigating burnout in program directors of anesthesia departments, 52% of 100 program directors interviewed were at “high risk” for burnout. Job-related stress, especially with respect to increased compliance demands, was predictive of burnout⁴. In another study evaluating program directors of internal medicine sections, there was an appreciable turnover rate in the first three years, with job stress being a contributing factor⁵. After July of 2013, program directors face more stress with the increased demands of NAS and the milestones.

Milestones and Clinical Competency Committee

The milestones will become the major assessment tool in orthopaedic surgical resident education. The orthopaedic milestones were developed by a work group that was charged by the ACGME and the American Board of Orthopaedic Surgery (ABOS) and that

**TABLE III Potential Actions by the Residency Review
Committee (RRC)**

Initial or continued accreditation
Request for more information from the program
Request site visit (focused or full) on a short timeline
Continued accreditation with warning
Probation

TABLE IV The Sixteen Areas That Have Orthopaedic Medical Knowledge and Patient Care Milestones

1. Anterior cruciate ligament injuries
2. Ankle arthritis
3. Ankle fractures
4. Carpal tunnel
5. Degenerative spine
6. Diabetic foot
7. Diaphyseal femoral and tibial fractures
8. Distal radial fractures
9. Adult elbow fractures
10. Hip fractures
11. Hip and knee osteoarthritis
12. Meniscal tear
13. Metastatic bone disease
14. Pediatric septic hip
15. Pediatric supracondylar humeral fracture
16. Rotator cuff injury

consisted of members from the ABOS, RRC, subspecialty societies, ACGME staff, and an educational facilitator. They are designed to assess program outcomes by assigning a standardized level of progress to each resident. The milestone scores are based on the modified system of Dreyfus and Dreyfus⁶, evolving from novice (level 1) to advanced beginner (level 2), to competent (level 3), to proficient (level 4), and, finally, to expert (level 5). Entry-level residents are expected to be at level 1, and finishing residents should be at level 4. Residents in training will rarely reach level 5.

There are sixteen orthopaedic clinical areas (Table IV), each of which is assessed with use of a medical knowledge milestone and a patient care (which includes procedural or surgical skills) milestone (thirty-two milestones in all). The other competencies, including professionalism, practice-based learning and improvement, systems-based practice, and interpersonal and communication skills, will also be evaluated in the milestone framework and will have nine total milestones. Therefore, forty-one milestone evaluations will be necessary for each resident semiannually. There are no guidelines in place for how program coordinators and program directors should incorporate these new evaluation forms into their current system. The policy has been instituted, but the process to implement the new requirements has not been defined. It is imperative that the department chairperson, program director, program coordinator, and the residents and fellows quickly get initiated and oriented to these new policies, since there has been little lag time between awareness, implementation and widespread use. Milestones reporting was required beginning as of Fall 2013, but milestones will not be used for program review until normative data are collected by 2015 at the earliest. Milestones are intended to replace some of the other evaluations that are currently used.

All departments are required to convene a Clinical Competency Committee or so-called “CCC.” The makeup of this

committee can be individually determined by each program and does not have to include the program director or departmental chairman. The CCC will be responsible for evaluating resident milestones and submitting twice yearly milestone reports on each resident to the ACGME. The CCC will offload some of the program director’s responsibility to determine a resident’s competence.

Future Concerns and Unanswered Questions

Program directors have many concerns about required milestone-based resident assessment. First, these new evaluation tools and methodology have not been validated. Many program directors rightfully will ask if this requirement is merely replacing one nonvalidated evaluation system with a new nonvalidated system. Second, there are many logistical issues involved in implementing the milestones, such as the following: (1) How will programs evaluate procedural-based milestones that are performed only once during the residency?; (2) What if a resident does not reach a level of proficiency (level 4), and he or she only had one opportunity on that service?; and (3) Will program directors be compelled to artificially elevate all residents to level 4 to avoid potential punitive intervention? These issues will need to be addressed after the milestone program is already in place.

The cost to implement the program is unknown. There will clearly be increased costs, not only in financial outlay but also in faculty, program director, and program coordinator time.

The optimal methods and tools to assess milestones have not been provided, so each program must create and implement methodology to obtain and monitor these evaluations. Faculty members have questioned how these sixteen milestones were chosen. Some seem fairly ubiquitous (distal radial fracture, for example) while others seem more obscure (diabetic foot, pediatric septic hip). Many other important patient care and medical knowledge competencies that a resident must learn during training are not incorporated in the forty-one milestones. How should they be assessed?

Most program directors would acknowledge that there were problems with the old system of accreditation, which, for the most part, was a time-based curriculum; once a resident passed the allotted time, he or she moved forward. The program directors remain cautiously optimistic that, ultimately, NAS will be a better method to accredit programs and that milestones will better assess our physicians-in-training.

Conclusions

NAS is replacing an accreditation system that has been far from perfect, but NAS has presented and will continue to present a tremendous amount of work to implement. As with anything new, there are uncertainties. Providing optimal program oversight will be difficult for a few years. Many of the data elements are not completely validated, and the ideal screening criteria will need to be reassessed over time. Some program requirements will be hard to monitor without mandated site visits and review of a program information form. There are concerns that the data screening will not identify all poorly performing programs. However, there are many positives; the system has potential,

and some of the assessments are promising. With less intrusive review requirements, accreditation under NAS may be easier for many programs. The “identify a problem and fix it” philosophy is admirable and may help programs that have gotten off track to quickly improve, thereby benefiting their residents. Shifting from process assessment to outcome assessment is a positive step. This article has provided a vision of NAS looking forward, as the program has just started. It will be very interesting to revisit this initial vision at future time points to assess the reality rather than speculating on how NAS will change program accreditation. ■

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