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The American Urological Association (AUA) has responded to an inquiry from the American Board of Urology (ABU) and other groups to determine where urology is now and what it may be expected to look like in the future. The initiative for this inquiry was partially based on the evaluation of case logs by the ABU which suggested that a “majority” of urologists were doing little in the way of major surgery and had “office-based” practices. The question easily followed, “Are we (urology) training our residents for what they will be doing in their subsequent practices?”

The Future of Urologic Residency Strategic Planning Committee was created and funded by the AUA to gain additional information regarding these issues. Dr. John McConnell was elected to serve as moderator of the committee’s work, and a wide range of people, including urologists from private practice and academics, persons on the ABU and Residency Review Committee for Urology, and others were selected to participate on the committee. The report entitled “The Future of Urology and Urologic Education in America” is the complete product of these discussions and was approved by the AUA Board of Directors at their meeting in October. The report is now being disseminated widely for comment. *AUANews* is pleased to publish the complete report in this issue and welcomes comments from our readers. Although no one can predict the future, it is very important, I believe, for organizations like the AUA to evaluate the field it represents and to be sure that the field is positioned well for further prosperity and advancement.

The Future of Urology and Urologic Education in America

Future of Urologic Residency Strategic Planning Committee: John D. McConnell, M.D. (facilitator); Ralph V. Clayman, M.D.; Robert C. Flanigan, M.D.; John B. Forrest, M.D.; William F. Gee, M.D.; Elizabeth Ann Gormley, M.D.; Stuart Howards, M.D.; Jeffrey E. Kaufman, M.D.; Michael O. Koch, M.D.; Jay B. Miller, M.D.; Glenn M. Preminger, M.D.; Lawrence S. Ross, M.D.; Steven M. Schlossberg, M.D.; Michael T. Sheppard, CPA, CAE; Linda D. Shortliffe, M.D.; William D. Steers, M.D.; Doris Stoll, Ph.D.; Thomas F. Stringer, M.D.; and Ian M. Thompson, M.D.

On April 1 and 2, 2006 the American Urological Association (AUA) sponsored a strategic planning meeting in Linthicum, Maryland to define the ideal “future state” of urologic education. The group was convened in response to a significant debate emerging within the specialty with regard to the structure and function of graduate medical education (residency and fellowship training). To be specific, there was increasing concern that American urologic training may evolve to a “two-tiered” system, similar to many European countries (ie one path for office-based urologists, another path for subspecialty urologic surgeons), and that the effect of such a model would be to decrease the current

broad-based capabilities of the graduating urologist.

The group was chosen carefully to balance divergent viewpoints and to provide technical expertise in key areas. Representatives included private practice and academic urologists, residency program directors and fellowship directors, American Board of Urology (ABU) and Residency Review Committee (RRC) members, and individuals with expertise in educational systems. The methodologies employed to reach the final recommendations included data presentations, strength-weakness-opportunity-threat reviews, small-group discussions and facilitated large-group consensus development.

Objectives

Major objectives of the strategic planning group were to:

1. Define the current state: strengths and weaknesses of urology graduate medical education from the standpoint of all pertinent stakeholders, including the patient.
2. Define the potential threats to the current training model, including sub-specialization within the specialty, as well as external competitive threats involving other branches of medicine.
3. Define—at a high level—the likely

- future state of urologic practice.
4. Define the future state of urologic training required to prepare young urologists for the practice of the future.
 5. Make specific recommendations to the AUA Board of Directors and subsequently to other urologic organizations—including the American Board of Urology, Urology Residency Review Committee, Society of University Urologists, Society of University Chairs and Program Directors, and AUA subspecialty societies—to close the gap between the current and future state.
 6. Develop strategies to effectively communicate the planning group's recommendations to all stakeholders.

Surgical Case Volumes and the Quality of Care

In many respects, the first serious discussion regarding changing the urologic training model came in 2004 and 2005 with the first presentation and discussion of certification and recertification operative logs submitted by

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Literature suggests that low volume surgeons may tend to offer restricted options to the patient (eg less frequently recommend rectal sparing surgical approaches to patients with rectal cancer), expend more resources per case or have higher recurrence rates in oncology cases (positive margins).

the American Board of Urology. These data clearly indicate that the average urologist (both at the time of certification 18 months post residency and at the time of recertification) performs a relatively low number of major urologic surgeries. For example, a urologist who performs eight radical prostatectomies per year or 0.5 radical cystectomies per year is in the top 10 percentile of case volume. Office-based procedures now constitute more than one-half of total urologic procedures (eg cystoscopies, prostate biopsies, etc).

When these data first emerged, thought leaders in academic urology wondered out loud whether the current residency program structure prepared young urologists well for what they would actually be doing in practice. To date, however, the ABU has not performed a detailed analysis of certification log data by region, group practice, practice size, rural versus urban location, or other relationships that may be important to understand. Undoubtedly, a large number of factors drive individual surgical volume, many of which cannot be predicted during the training period. These factors currently include reimbursement favoring office-based procedures, physician ownership of facilities, minimally invasive procedures, access to

tertiary care centers, “comfort zone” of the surgeon, referral patterns, efficiency issues within a practice, consumer self-referral, specialty training and specialization in large, private practice groups. In other words, changes in training to address current practice patterns may not meet future needs. Additional data are needed, including trends over time and the review of other national databases before definitive conclusions can be reached.

Although it seems intuitive to some that lower surgical volumes may result in less favorable outcomes, this relationship is far from proven. No single study or combination of studies in the urologic literature can be used to establish clear volume thresholds. Moreover, individual low volume surgeons may have outcomes that are superior to individual high volume surgeons. There is great variation in outcomes among high volume surgeons. Lower volume surgeons, for example in orthopedic and cardiac surgery, appear to have better outcomes if they operate within high volume facilities. This latter point, that process and team support are as important as volume and indeed may allow low volume surgeons to have favorable outcomes, is made by the Institute of Medicine in recent reports.

Despite these uncertainties and the small number of urology-specific studies, consumers and payers are increasingly convinced that individual surgeon case volume is important. In addition to mortality, length of stay and complication, health service researchers are also exploring the relationship between volume and other outcomes. Literature suggests that low volume surgeons may tend to offer restricted options to the patient (eg less frequently recommend rectal sparing surgical approaches to patients with rectal cancer), expend more resources per case or have higher recurrence rates in oncology cases (positive margins).

Planning Group Consensus

1. *The average urologist performs a relatively low volume of major surgical procedures once they finish residency.*
2. *Although evidence suggests a general relationship between volume and outcomes, the available data do not permit the establishment of individual surgeon “minimal case volumes” for a given procedure.*
3. *Relatively low volume surgeons operating in high volume facilities with good processes may experience outcomes similar to high volume surgeons.*
4. *Further analysis of the ABU certification data is required to determine if there is significant variation in case volume based upon practice size, geography and other factors.*
5. *It would be premature to suggest major revisions in urologic training models based solely on surgical case log data.*

The Current State of Urologic Practice

Urology is moving in two directions at once. More than one-half of urologic procedural volume (and thus reimbursement) is now office-based. At the same time, however, the inpatient acuity level of all surgical practices has increased substantially due to the migration of some procedures out of the hospital environment and the increased complexity of the remaining surgical procedures (eg cystectomy).

There is an increasing variability in practice size. A substantial number of urologists in America still practice in relatively small groups or solo practice, where a broad base of experience and skill is required to manage problems across the entire urologic spectrum. Perceived economic advantage has led to consolidation in some larger markets. So-called “mega groups” often hire fellowship-trained urologists

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who cover subspecialty areas, such as oncology, stone disease, minimally invasive surgery or pediatric urology. Even in large groups, however, practice leaders largely desire broadly trained urologists who can “cover all the bases,” especially while they are on call. Despite subspecialization and differentiation with large private and academic practice groups, urologists (with the possible exception of pediatric urologists) are often required to cover common urologic emergencies and issues for the group.

There is also an increasing role for mid-level providers (physician assistants, nurse practitioners, etc) in both community and academic practice. Some view this as an opportunity for the urologist to focus on surgical practice, while others view it as a potential threat to the specialty.

Clearly, there are numerous external threats to urology, including attempts by the organized radiology community to limit the historic role of the urologist in imaging, specifically in prostate ultrasound. Urogynecology, radiation oncology, medical oncology, interventional radiology and reproductive endocrinology compete with urology in many markets across numerous disease states. Although a fellowship trained urologic specialist may be the ideal way to successfully meet the competitive threat, it is impractical to

think that urology can train enough subspecialists to meet the volume demands. The broadly trained general urologist in most practice settings must be able to provide adequate urologic care to a wide range of patients and disease processes, with the probable exception of major pediatric surgical cases.

Planning Group Consensus

1. *Despite a major shift in urologic procedural volume to the office, the general urologist today must be fully trained to deal with a broad range of urologic disorders both medically and surgically.*
2. *Fellowship training is vital to the long-term health of urology, but most urologic care in the United States will continue to be provided by the well trained general urologist.*
3. *A two-tiered urologic training system would not produce a sufficient number of broadly trained urologists to provide comprehensive care for patients given the significant demographic and practice model diversity that exists in the United States.*
4. *Comprehensive training of general urologists is vital to sustaining our competitive role as the specialty primarily responsible for diagnosing and treating all diseases of the genito-urinary tract.*

The Attractiveness of Urology to Medical Students

At the present time, essentially all urology positions in residency programs fill, with the vast majority of slots going to truly outstanding medical students. Urology continues to be attractive because of the mix of surgical and medical management approaches; however, surgery is the key element in the attractiveness of the specialty.

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The general consensus of the strategic planning group was that a two-tiered training approach would make urology a much less attractive specialty to medical students if there is a suggestion that fewer surgical cases will be performed.

There are other evolving pressures that will impact the attractiveness of a urologic residency in the future. These should be considered in any decision to alter the structure of urologic training programs. There is an increasing amount of medical school debt for young people going into residency (\$115,000 to \$155,000). This may pose a barrier to students comparing fields that only require three years of training versus programs, like urology, that require five to six. Many academic leaders feel this is already a barrier to young people entering academic practice because of the lower compensation levels when compared to private practice. In addition, there are real and perceived “lifestyle” issues (the intensity of training, on-call, etc) that seem to be increasingly important to the current generation of medical students. Lastly, the planning group expressed a strong desire to keep urology more attractive to women and minorities.

Planning Group Consensus

1. *Urology must take proactive steps to ensure that the specialty remains attractive to the best medical students.*
2. *Total length of training (inclusive of fellowship) represents a barrier to young people considering fellowship, either for private practice or academic practice careers.*
3. *Urology should intensify efforts to recruit a large number of women and minorities into the specialty.*

Specialty Training and Fellowships

The planning group did not reach a consensus on the issue of Certificates of Added Qualifications (CAQs). The American Board of Urology will continue to review and consider CAQs based upon their own merits. Surely, the initiative here rests with the urologic subspecialty groups. Many urologists in private practice feel threatened by the development of CAQs for fear that they will restrict practice in certain venues. The subspecialty representatives on the planning group strongly articulated the view that the primary objective of fellowship and (if appropriate) the CAQ process is to develop programs that are training the next generation of leaders and not the development of “guilds” that define privileges and capabilities.

Although the planning group was not assembled to address the wisdom of urologic subspecialty training, the group unanimously supported the importance of fellowship training to the future of urology. Fellowships enhance the overall quality of a training program and aid in faculty recruitment and retention. The future of

academic urology is totally dependent on the “fellowship pipeline,” while in private practice (with the exception of pediatrics) it is not essential for most practice groups. Ultimately private practice urologists benefit from high quality fellowship programs because they ensure high quality faculty, which in turn are required for the training programs that will groom their next partner. Thus, the planning group (both academic and private practice participants) unanimously endorsed the importance of fellowship training.

In order to increase the quality and efficiency of urologic training and possibly shorten the overall time requirement, the group expressed a strong desire to link and coordinate residency fellowships. This would require several key steps. First, urology needs to develop a clearly defined urology curriculum necessary to provide a “core” urology training experience. Second, better tools to assess competency (including surgical competency) are required. Third, some degree of specialization/differentiation should be permitted during the last year of residency, eg a resident interested in pursuing fellowship training in oncology should be able to emphasize his/her oncology experience and de-emphasize pediatric urology during his/her last year. This degree of flexibility was perceived by many to be impossible,

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but RRC leaders present at the meeting articulated a clear willingness to consider flexible programs if there was clear buy-in from the ABU, AUA and urology as a whole. Lastly, flexibility during residency must be accompanied by flexibility during fellowship, so that the resident who did more oncology during this last year of residency could be given “advanced placement credit” for a portion of fellowship thereby shortening the total training requirement. The group agreed that developing funding models to support such flexibility would be difficult.

Planning Group Consensus

1. *The enhancement and expansion of fellowship training in the various subspecialty areas are vital to the long-term health of both academic and private practice.*
2. *The total duration of training is a major threat to the long-term viability of fellowship programs.*
3. *Flexibility in both residency and fellowship training programs will be required to shorten the total duration of residency.*
4. *Fellowship programs across all subspecialty areas need to be more effectively coordinated.*

Training Programs and the Residency Review Committee

As mentioned, flexibility in the residency training experience is the key element in any plan to link residency training to fellowship, thus reducing total training time. For example, the Residency Review Committee leadership expressed willingness to reexamine index cases and the “10th percentile requirement” in order to create more flexibility in the operative procedure requirement area. Specific thought is being given to grouping certain types of cases (eg all major abdominal cases) rather than specific surgical procedures. Overall, the RRC leadership

expressed great willingness to look at flexible current models. Several residency programs have either submitted alternative/flexible programs or are currently designing them.

There is also opportunity for better coordination of the early residency experience. There is a strong consensus that program directors often lack control over the initial one to two years in general surgery. Defining more precisely the requirements/ expectations of the preliminary urology experience and giving urology program directors control over that experience may create the opportunity for more elective time in the later years.

Planning Group Consensus

1. *A standardized national urologic “core” residency curriculum should be developed through the co-leadership of the AUA and the Society of University Urologists with input from the RRC.*
2. *The RRC should permit flexibility in the core training experience, taking into consideration the future plans for fellowship training versus broad-based general training for those residents not going on to fellowship.*
3. *Urology program directors should have control over the pre-urology years.*
4. *The Society of University Urologists should explore and recommend specific graduate medical education (GME) funding issues to address the logistics of “flexible training.”*
5. *Urology should work with other surgical disciplines to develop better techniques to assess competency (especially surgical competency) during core training with the specific goal of “promoting” residents in shorter time frames if they have mastered certain competencies. To this end the AUA has committed time and funds to develop surgical simulators to aid in the teaching and evaluation of surgical skills.*

Needs in Private Practice and Academic Urology

The private practice urologists on the planning group believe young urologists coming into their group practices (varying from small to large) must be broadly trained to address all issues that may emerge during routine patient care and call coverage. Specific skills beyond comprehensive urologic knowledge and skills desired include intensive care unit experience, urologic imaging, minimally invasive surgery, rapid adaptation to new technologies and some core business understanding. There was specific concern that CAQs, if they were developed, not be used to limit privileging or credentialing in a general hospital environment.

The academic physicians in the planning group agreed with the above, but added that urologic training must include the maintenance of the attractiveness and feasibility of fellowship training, especially with mounting debt and training length. In addition, programs must include a research experience (clinical or basic) element of educational skills, grantsmanship and other junior faculty skills.

Planning Group Consensus

1. *Both academic and private practice groups benefit from the broad-based, comprehensive training approach.*
2. *Elective time during residency would allow some time for more detailed preparation for either private practice or academic careers.*
3. *Research experience during residency, especially clinical research, is valued by both private practice and academic groups.*

The Future of Urology

Given the time lag between the desire to improve urologic training and the actual development of new training models, it is important to consider the future of urologic practice in the next 10 to 20 years. The planning group spent considerable time discussing this topic and felt that the advances in urologic care over the next two decades that would impact training include trends toward more extensive use of imaging and image guided therapy, minimally invasive surgery, office-based oral selective chemotherapy for renal and prostate cancer, advances in radiation oncology and enhanced pharmacologic management of common urologic conditions. Training models must take into account the evolution of urologic care. Urology residents must learn more about the physics of imaging and principles of chemotherapy during training to prepare for a world where diagnosis and therapy for many common conditions may be exclusively office-based, even cancer.

Summary

Most medical students who go into urology are initially attracted to the specialty because urologists diagnose and treat, both medically and surgically, a broad range of disease entities. We will clearly need to adapt to a new future—a future of more advanced imaging, office-based oral chemotherapy, more complex reconstructive procedures, etc—and urologists' important role in that future can only be influenced if we are actively involved in every aspect of management. Having two types of urologists, office-based and surgical, will weaken the specialty, fail to meet the needs of our patients and make it less likely that we can significantly influence our future.

There is no doubt, however, that the training models of the last 20 years will not serve the specialty well for another 20 years. Flexibility (to respond rapidly to change and technology) and tailoring (to match the skills and desires of the individual trainee) are mandatory ingredients in any system that hopes to respond to a rapidly changing environment and adapt to the information age.

Specific Recommendations

- Clearly articulate that a two-tiered model in the United States is not in the best interest of our patients or the specialty.
- Develop a national core curriculum for urologists to include both cognitive and manipulative skills.
- Urologic subspecialty societies should define what knowledge and skills should be acquired during core versus fellowship training.
- Put Urology program directors in charge of postgraduate year 1.
- Make the last two years of residency flexible (ie allow for electives) after core competencies are developed.
- Move away from all residents needing equal surgery logs; focus more on the minimal number of total cases than specific types of cases.
- Partially integrate the chief residency year into fellowship.
- Develop a Fellowship Program Directors organization from all subspecialties to develop common fellowship standards.
- Clearly define who “controls” the quality of fellowships: RRC, specialty societies, etc.
- Reinforce the importance of the research experience to all trainees, regardless of their career goals.
- Develop electives for residents (in some cases fellows) headed toward academic careers to develop skills in teaching, research, writing and grantsmanship.
- Put ongoing assessment of urologic training more into a continuous quality improvement model and repeat national assessment periodically (eg 5 years).