

Selective Pathology Fellowships

Diverse, Innovative, and Valuable Subspecialty Training

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• **Context.**—Although selective pathology fellowships have a long-standing history of developing trainees with advanced expertise in specific areas of pathology other than those of the American Board of Pathology–certified subspecialties, the widespread interest in this training continues to grow.

Objective.—To describe the historical background and current status of selective pathology fellowships, and to provide examples of 3 programs. In addition, Accreditation Council for Graduate Medical Education (ACGME)–accredited programs and nonaccredited programs in Selective Pathology are compared.

Data Sources.—ACGME data banks and publicly available online materials were used. Program directors of the fellowships examples in this paper provided program-specific information. Additionally, an online survey of the program directors and program coordinators of ACGME-accredited programs and nonaccredited programs in selective pathology was performed.

With the advent of molecular diagnostics, informatics, and personalized medicine, and advances in pathology and medicine in general, the amount of medical knowledge that must be integrated routinely into the clinical practice of pathology continues to grow exponentially. In the 11 pathology subspecialties that lead to American Board of Pathology (ABP) subspecialty certification, fellowship training provides the opportunity and resources for trainees to increase their medical knowledge, incorporate these technologies, and develop advanced diagnostic skills in the designated subspecialty area. This growth in technologic advances and medical knowledge,

Conclusions.—There are currently 76 ACGME-accredited selective pathology programs. The programs are distributed between 3 major categories: surgical pathology, focused anatomic pathology, and focused clinical pathology. Although the vast majority of programs are concerned that their funding source may be cut in the next 3 years, most programs will not change the number of fellowship positions in their programs. Program requirements devoted specifically and solely to selective pathology have been developed and are in effect. The value of this training is recognized not only by pathologists, but by clinicians as well, in both academia and private practice. Importantly, the diversity and innovation inherent in selective pathology allow these programs to adeptly address new subspecialty areas and technologic advances in the current and evolving practice of pathology.

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however, is not limited to the ABP-certified subspecialty areas. Accordingly, the educational objective of selective pathology fellowships is to develop trainees with advanced expertise in specific areas of pathology other than those of the ABP-certified subspecialties.

This article describes the historical background and current status of selective pathology fellowships. Detailed descriptions are provided for 3 different training programs, one in each of the major categories of selective pathology: surgical pathology, focused anatomic pathology (AP), and focused clinical pathology (CP). The results of a brief survey-based comparison of Accreditation Council for Graduate Medical Education (ACGME)–accredited programs (AAPs) and nonaccredited programs (NAPs) are presented. In addition, the recently developed and approved selective pathology program requirements for accreditation by the ACGME are described. Finally, the recognized value of selective pathology training to eventual clinical practice is discussed.

Of note, except where specifically indicated, the findings and discussion throughout this article refer to selective pathology fellowships that are ACGME accredited. Although it is reasonable to assume that the findings also apply to many (if not all) of the NAPs, the AAPs serve as the basis for this review.

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Table 1. Approved Categories of Pathology Training in the Green Book, 1964 Edition

Category APCP-4. In both anatomic and clinical pathology for a total of 4 years.
Category APCP-2. In both anatomic and clinical pathology for a total of 2 years.
Category AP-3. In anatomic pathology only for 3 or more years.
Category AP-1. In anatomic pathology only for 1 year.
Category CP-3. In clinical pathology only for 3 or more years.
Category CP-1. In clinical pathology only for 1 year.
Category SP. Special pathology only, usually for 1 year. This designation includes forensic pathology, research only, and such other special programs as may be approved.

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HISTORICAL BACKGROUND OF SELECTIVE PATHOLOGY FELLOWSHIPS

Selective pathology has a long-standing history. Three of the earliest accredited programs—Brigham and Women’s Hospital (Boston, Massachusetts; obstetric, gynecologic, and perinatal pathology), Memorial Sloan-Kettering Cancer Center (New York, New York; oncologic pathology), and the University of Texas MD Anderson Cancer Center (Houston, Texas; surgical pathology)—received initial accreditation in 1950, 1953, and 1950, respectively; notably, these fellowships continue today as active training programs.¹

“Special pathology” was the term used originally to designate these specialized pathology training programs, which were usually 1 year long and were in areas other than the core AP or core CP residency curriculum, or the ABP-certified subspecialties. The term first appeared in the 1964 edition of the *Graduate Medical Education Directory* (also known as the “The Green Book”), which was published by the American Medical Association, the graduate medical education accreditation organization at the time.² The Green Book listed accredited graduate medical education training programs and program requirements, as well as approved categories of training within a specialty. It is not clear whether the name “special pathology” was put forth originally by the ABP or the American Medical Association (C. Bruce Alexander, MD, et al, written communication, July 2013). Other than AP and/or CP training, special pathology was the only additional approved category of pathology training in the 1964 edition of the Green Book (Table 1).² The so-called “category SP” was defined as “Special pathology only, usually for one year. This designation includes forensic pathology, research only, and such other special programs as may be approved.” As such, from the outset, the value of training in specialized areas of pathology other than those leading to board certification was recognized.

Special pathology remained the only approved category of subspecialty training in pathology listed in the Green Book until 1971–1972.² At that point, forensic pathology and neuropathology were listed for the first time as approved subspecialty categories.² Special pathology continued as an approved category of training, and in the 1972–1973 edition of the Green Book, the description was expanded to “programs in this category are ordinarily approved in highly

Table 2. Approved Categories of Pathology Training in the Green Book, 1972–1973 Edition

Category APCP-4. In both anatomic and clinical pathology for a total of 4 years.
Category APCP-2. In both anatomic and clinical pathology for a total of 2 years (1 year in anatomic pathology and 1 year in clinical pathology).
Category AP-3. In anatomic pathology only for 3 or more years.
Category AP-1. In anatomic pathology only for 1 year.
Category CP-3. In clinical pathology only for 3 or more years.
Category CP-1. In clinical pathology only for 1 year.
Category APFP-4. In both anatomic pathology and forensic pathology, 2 years in each, for a total of 4 years.
Category APNP-4. In both anatomic pathology and neuropathology, 2 years in each, for a total of 4 years.
Category SP-1. In special pathology, usually for only 1 year. Programs in this category are ordinarily approved in highly specialized hospitals of acknowledged excellence which because of the limitations of their clinical material cannot provide general training in anatomic or clinical pathology. Residents receiving part of their training in such programs should consult with the American Board of Pathology as to what other training is necessary to provide acceptable breadth of experience.
Category FP-1. In forensic pathology for 1 year.
Category FP-2. In forensic pathology for 2 years.
Category NP-1. In neuropathology for 1 year.
Category NP-2. In neuropathology for 2 years.

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specialized hospitals of acknowledged excellence” (Table 2).² This quality continues today to characterize selective pathology programs because these fellowships are typically sponsored by leading medical centers with recognized expertise and resources in specific subspecialty areas of pathology.

The 1981–1982 edition of the Green Book included the additional subspecialties of dermatopathology, blood bank, and radioisotopic pathology as approved categories of pathology training (Table 3).² Although special pathology continued to be an approved area of training, its name was changed to “selective pathology.” In addition, the year of selective pathology training was “deemed to be equivalent to one year of training in either anatomic or clinical pathology.”² Thus, it appears that prior to 2002, when the ABP eliminated the credentialing year of pathology residency training starting with the entry class that year (thereby shortening the combined APCP residency from 5 years to 4 years), selective pathology fellowships could be used to fulfill this fifth year of required training.

Until 1992, the numeric identifier for selective pathology programs in the Green Book was simply a modification of the number used for the pathology core residency training. Selective pathology, however, reached the status of being assigned a specific numeric identifier for the first time in the 1992–1993 edition of the Green Book.² This training was thereby recognized by the ACGME as a distinct subspecialty, similar to the ABP-certified fellowships, and this designation continues today. Of note, the specialty focus of 7 of the 12 selective pathology programs listed in the Green Book that year was pediatric pathology. After ACGME-approved program requirements for pediatric pathology became effective in July 1995, all of these 7

Table 3. Approved Categories of Pathology Training in the Green Book, 1981–1982 Edition

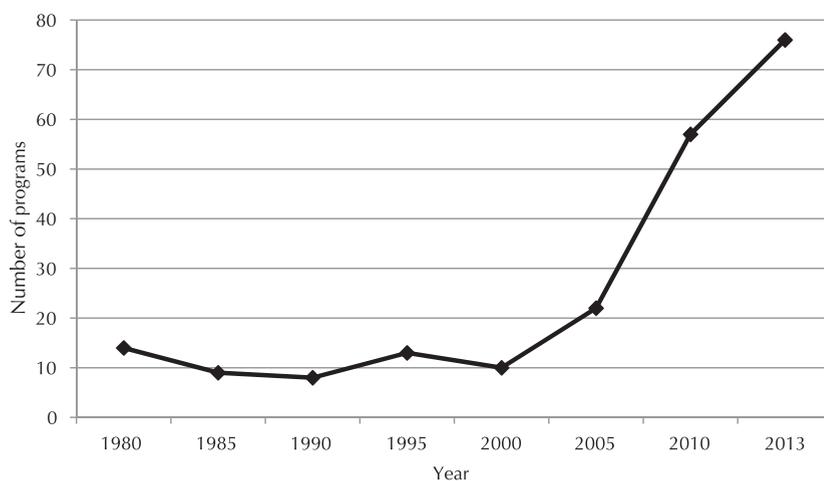
Category APCP-4. In both anatomic and clinical pathology, 2 years in each, for a total of 4 years.
Category AP-3. In anatomic pathology only for 3 or more years.
Category CP-3. In clinical pathology only for 3 or more years.
Category APFP-4. In both anatomic pathology and forensic pathology, 2 years in each, for a total of 4 years.
Category APNP-4. In both anatomic pathology and neuropathology, 2 years in each, for a total of 4 years.
Category FP-1. In forensic pathology for 1 year.
Category FP-2. In forensic pathology for 2 years.
Category NP-2. In neuropathology for 2 years.
Category DP-1. In dermatopathology for 1 year.
Category DP-2. In dermatopathology for 2 years.
Category BB-1. In blood banking for 1 year.
Category RIP. In radioisotopic pathology for 1 year.
Category SP-1. In selective pathology (formerly special pathology), usually for 1 year. Programs in this category are ordinarily approved in highly specialized hospitals of acknowledged excellence which because of the limitations of their clinical material cannot provide general training in anatomic or clinical pathology. Resident experience in a selective pathology program is deemed to be equivalent to 1 year of training in either anatomic or clinical pathology. Residents receiving part of their training in such programs should consult with the American Board of Pathology as to what other training is necessary to provide acceptable breadth of experience.

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programs eventually became accredited pediatric pathology fellowships.

The number of ACGME-accredited selective pathology programs has increased significantly over this period of time (Figure).^{1,2} Whereas from 1980 to 2000 the number stayed fairly steady at 8 to 14 programs, in the early 2000s the number of selective pathology fellowships increased sharply to reach its current total of 76 programs.^{1,2} Although this review did not specifically study the possible causes of this rapid growth in the number of ACGME-accredited selective pathology programs, it is reasonable to speculate that the following factors were contributory: (1) trainee interest in an additional year of training to gain more experience after the combined APCP residency was shortened from 5 years to 4

Number of Accreditation Council for Graduate Medical Education-accredited selective pathology programs from 1980 to June 2013.



years in 2002; (2) trainee (and employer) interest in gaining subspecialty expertise, particularly as subspecialty sign-out in surgical pathology in the many non-ABP-certified subspecialty areas became a widespread practice; (3) interest among preexisting (and often long-standing) nonaccredited selective pathology programs to apply for and receive ACGME accreditation; and (4) federal government policy that medical trainees who are J-1 visa holders can only stay in the United States if they are in an ACGME-accredited fellowship.

CURRENT STATUS OF SELECTIVE PATHOLOGY FELLOWSHIPS

Today, selective pathology programs are uniformly sponsored by large academic medical centers.¹ The ACGME provides accreditation for 1 year of training, although some programs offer a second year of training, which is not accredited. As required for accreditation, these programs have pathology subspecialty faculty experts as teachers and mentors, a well-organized subspecialty curriculum, adequate (and usually an abundance of) subspecialty clinical material, appropriate diagnostic resources (which in many programs includes the full armamentarium of state-of-the-art subspecialty technologies), and increased patient care responsibilities and laboratory administration activities for the fellows. All programs provide support for trainee scholarly activity. In some programs, particularly those developed for trainees with an interest in academic practice, research with the intent of publication is a requirement. Close collaborative relationships with the related clinical subspecialty services typify selective pathology programs; this integration allows the fellows to fully understand the clinical implications of the pathologic diagnoses and identify opportunities for translational research. The immersive training with increased responsibilities provided by selective pathology programs allows the trainees to develop advanced clinical and research skills in the subspecialty area of the fellowship.

Selective pathology programs currently are divided into 3 major categories of subspecialty training: (1) surgical pathology, (2) focused AP, and (3) focused CP. The educational objective of the surgical pathology programs is to develop trainees with advanced skills and competency in diagnostic surgical pathology, including the capability to independently sign-out cases and perform intraoperative consultations. The educational objective of focused AP and

Table 4. American Council for Graduate Medical Education–Accredited Selective Pathology Programs^a

Subspecialty	No. of Programs
Surgical pathology	25
Focused anatomic pathology	47
Breast/gynecologic/perinatal pathology	10
Gastrointestinal/hepatic pathology	9
Soft tissue/bone pathology	7
Genitourinary pathology	4
Renal pathology	4
Head and neck pathology	3
Thoracic pathology	3
Oncologic pathology	2
Cardiovascular pathology	1
Forensic neuropathology and cardiovascular	1
Ophthalmic pathology	1
Pulmonary pathology	1
Transplantation pathology	1
Focused clinical pathology	4
Cancer biomarkers	1
Hematology	1
HLA	1
Special coagulation	1

Abbreviation: HLA, human leukocyte antigen.

^a Programs for the year ending June 30, 2014.

focused CP programs is for trainees to develop advanced expertise in the diagnostic activities, and in some programs the research activities, of specialized areas of AP and CP, respectively. An example of a program from each of these 3 categories is described in detail below.

As of June 2013, there are 76 ACGME-accredited selective pathology programs (Table 4).¹ The largest group is focused AP (47 programs), followed by surgical pathology (25 programs), and then focused CP (4 programs). On average, the surgical pathology fellowships offer the most ACGME-approved positions per program, with an average of 4 positions per program each year (range, 1–14 positions). In comparison with the 11 ABP-certified subspecialties, selective pathology offers the most ACGME-approved positions and is within the top 3 subspecialties for the percentage of these positions that are filled (Table 5). Both of these features indicate widespread interest in selective pathology training.

Although the surgical pathology fellowships by definition share the common goal of developing trainees with advanced skills in general surgical pathology, the objective

of focused AP and focused CP programs is to provide advanced training in established or evolving areas of subspecialty practice, including the diagnostic and research applications of rapidly developing technologies in the subspecialty.¹ Accordingly, these programs in particular demonstrate the diverse and innovative qualities that are hallmarks of selective pathology, as illustrated in the following examples. Although the most common subspecialty areas of focused AP programs are breast/gynecologic/perinatal pathology and gastrointestinal/hepatic pathology, with 10 and 9 programs, respectively, virtually every organ, tissue, and anatomic system subspecialty area of surgical pathology is represented (Table 4). Some programs, such as The Methodist Hospital's (Houston, Texas) Ophthalmic Pathology Program (described in detail below), provide training in a subspecialty with a shortage of trained pathology experts. Other programs, such as the Mayo Clinic's (Rochester, Minnesota) Multidisciplinary Breast Pathology Fellowship Program, offer innovative, fully comprehensive training in a well-represented subspecialty area by including outpatient clinical rotations in all of the related major clinical disciplines, in addition to in-depth training in breast pathology.³ Focused AP programs, however, are not limited to surgical pathology subspecialties. The selective pathology fellowship sponsored by New York City's Office of Chief Medical Examiner is devoted specifically to the forensic aspects of neuropathology and cardiovascular pathology. This training provides forensic pathologists with an additional level of specific expertise in 2 areas that are of the utmost importance to the determination of cause and manner of death in cases that are sudden, violent, or unexpected (Barbara Sampson, MD, PhD, written communication, July 2013). Exemplified by the University of Texas MD Anderson Cancer Center's Cancer Biomarker Pathology Program, some programs combine "traditionally" AP and CP disciplines for the practice of diagnostic oncologic pathology. In this program, trainees develop advanced microscopic diagnostic skills in a specific subspecialty area of oncology pathology of their choice, and they integrate these with the expertise they gain in the molecular techniques used for cancer biomarker discovery and validation as they apply to the chosen subspecialty area.⁴ Finally, other programs—for example, that in selective hematopathology sponsored by The Methodist Hospital (described in detail below)—are purposefully designed to provide training in the rapid and ongoing advances in

Table 5. American Council for Graduate Medical Education (ACGME)-Accredited Fellowships by Specialty for 2012–2013*

Specialty	Number of Programs	Approved Positions	Filled Positions (%)
Selective	69	187	153 (82%)
Cytopathology	92	167	138 (83%)
Hematology	85	154	135 (88%)
Dermatopathology	54	105	84 (80%)
BBTM	48	79	51 (64%)
Forensic	34	76	39 (51%)
Molecular Genetic Pathology	34	53	45 (85%)
Neuropathology	33	72	42 (58%)
Pediatric	27	39	19 (49%)
Medical Microbiology	13	19	10 (53%)
Chemical	2	3	1 (33%)
Clinical informatics	New – data not available	New – data not available	New – data not available

Abbreviations: BBTM – Blood Bank Transfusion Medicine.

*Last updated 2/25/13

molecular diagnostic testing. In the Methodist Hospital Hematopathology program, the trainees gain advanced expertise in the diagnostic and research applications of these clinically important technological advances in hematopathology. As demonstrated in these examples, the variety and innovative qualities of selective pathology programs directly reflect the diversity and ongoing technologic advances that characterize the practice of pathology.

EXAMPLES OF SELECTIVE PATHOLOGY PROGRAMS

Selective Pathology–Surgical Pathology: University of Southern California/Los Angeles County + University of Southern California Medical Center Program, Los Angeles, California

Although the development of proficiency in diagnostic surgical pathology is an expectation during AP residency training, many residency graduates and employers consider it preferential for the young pathologist to have an additional year of focused training prior to assuming full attending-level responsibilities for this clinical service.⁵ Accordingly, the educational objective of the University of Southern California/Los Angeles County (USC/LAC) + USC Medical Center Surgical Pathology Fellowship is to develop trainees with advanced skills and competency in diagnostic surgical pathology, including the capability to independently sign-out cases and perform intraoperative consultations (also known as frozen sections).

The fellowship is 12 months long, and the fellows rotate 2 months on nongynecologic surgical pathology; 2 months on gynecologic surgical pathology; 4 months at the Keck Hospital of USC, which has a significant component of oncologic surgical pathology and transplant pathology; 1 month on consultations; 2 elective rotations; and 1 vacation block. The pathology departments at the sponsoring institution and the affiliate have a general approach to sign-out, although subspecialty pathologists in virtually all areas are on the fellowship faculty.

At the start of the program, the trainees undergo an intradepartmental “credentialing process” to orient them to the clinical service and allow the faculty to assess the trainees’ entry level of diagnostic competency and preparedness for graduated responsibility on the clinical service. This includes an orientation lecture that covers the essential areas of the Surgical Pathology Standard Operations Procedure Manual and information related to hand-over policy and case logs; this is followed by a 25-question written examination based on the lecture material. The incoming fellows also are asked to provide a case log from residency to demonstrate the number of intraoperative consultations and surgical specimens they evaluated during residency. In addition, the fellows take a practical examination that is composed of 10 glass slides, which includes one or two frozen sections. The fellows must score satisfactorily on both the written and practical exams. If they do not, they repeat the questions they miss. After the fellows achieve a satisfactory score on these examinations, they do 25 frozen sections, performing all steps of the cases, including cutting the sections, rendering the diagnosis, and reporting the results using The Joint Commission’s read-back policy. Proctoring faculty sign off on each of the credentialing frozen sections.

As the trainees progress through the program, the Surgical Pathology Fellowship Clinical Competency Committee, which includes 3 surgical pathology fellowship

faculty members, reviews the credentialing documentation and rotation performance evaluations. If the trainee has demonstrated a satisfactory level of competence, the Surgical Pathology Fellowship Clinical Competency Committee issues an advisory letter to the fellowship program director that recommends the advancement of the fellow to “oversight supervision.” The surgical pathology fellowship program director then issues a letter to the fellow that he or she has been advanced to oversight supervision. It also encourages the fellows to continue to review with the faculty on service any cases in which they have questions, concerns, or issues.

Fellows cover all of the frozen section call at the LAC + USC Medical Center during the day, and there is a fellow who covers call on evenings, weekends, and holidays. Until the fellow is credentialed for oversight supervision, the faculty member must directly supervise all frozen sections. Once the fellow has achieved oversight supervision, the fellow is allowed to perform and call back the frozen sections independently. As per the oversight supervision guidelines, during the next business day all cases are reviewed by the faculty member on call, and feedback to the fellow is provided.

Functioning like junior faculty, the surgical pathology fellows also sign out cases with the pathology residents. In the early phase of training, the fellows review all of these cases with the attending faculty member. As the fellows progress through training and demonstrate to the Surgical Pathology Fellowship Clinical Competency Committee a satisfactory level of competence, they are granted more independence. Some faculty members duplicate what Dr Mark Wick has termed “turbo sign-out,” in which only the key diagnostically important slides in each case are reviewed with the faculty (Mark R. Wick, MD, oral communication, December 2009).

Most of the program’s graduates pursue careers in private practice, although some go into academia.

Selective Pathology–Focused AP–Ophthalmic Pathology: The Methodist Hospital

Most of the ocular pathology practiced around the country and around the world is performed by general pathologists or neuropathologists, and most of these practitioners do well with common entities and uncomplicated cases. However, for less common diseases or complicated cases, the expertise of an ocular pathology specialty-trained pathologist is typically needed for optimal patient care. Unfortunately, ophthalmic pathology is a subspecialty that suffers from the shortage of trained ocular pathologists. In large part, this is due to the lack of funding for this training; the lack of support by ophthalmology departments, which have been the traditional home of the ocular pathologists; and decreases in the Centers for Medicare and Medicaid Services reimbursement to hospitals for certain ophthalmic procedures. To address this increasing shortage of trained specialists, the education objective of this training program is to develop practitioners with advanced specialty expertise in ocular pathology. This program is currently the only ACGME-accredited selective pathology program in ophthalmic pathology.

The ophthalmic pathology program at The Methodist Hospital is based in the Department of Pathology. The program’s faculty includes pathologists (including ocular pathology specialists), cytopathologists, hematopathologists, and ophthalmologists.

The fellowship is 12 months long and accepts fellows from either ophthalmology or pathology residency programs. For this reason, it is designed to have a curriculum track for each training background. For ophthalmology-trained fellows, the design includes 6 months of ocular pathology, 3 months of pathology rotations (cytopathology, flow cytometry/molecular pathology, and general surgical pathology), and 3 months of electives (repeating any of the surgical pathology rotations, research, or ophthalmic plastic surgery and orbital oncology). For the pathology-trained fellow, there are 6 months of ocular pathology, 3 months of ophthalmology (ocular oncology, oculoplastics, and orbital surgery), and 3 months of electives. Fellows from either training background review ocular specimens (adult and pediatric), which include enucleated eyes, exenterations of the orbit, eyelid, conjunctiva, lacrimal sac, lacrimal gland, orbit, and intraocular biopsies. Ocular cytology training also is part of the curriculum, and it includes interpretation of vitrectomy specimens, anterior chamber taps, corneal and conjunctival scrapings, and occasional fine-needle aspiration biopsies of intraocular lesions. In addition, fellows have the opportunity to review outside consultations of ophthalmic pathology cases that are routinely received in the department. Although the fellow takes evening and weekend call from home with indirect faculty supervision, the number of these cases is very low.

The eventual practice of the program's graduates typically is based on their residency training background. Those ophthalmic pathology-trained fellows with an ophthalmology background will usually practice in an academic environment, with their primary appointment in the ophthalmology department, often with a secondary appointment in the pathology department. Their main practice is in one of the nonpathology ophthalmology specialties, with ophthalmic pathology performed part time. The graduated fellows with a pathology background usually complete a fellowship in another subspecialty of pathology, and they will practice ocular pathology as a secondary specialty, typically in an academic setting.

Selective Pathology-Focused CP-Hematopathology Pathology: The Methodist Hospital

The ABP currently requires only 1 year of formal hematopathology training to be board eligible for hematology subspecialty board certification. Although rapid advances in technology and clinical knowledge are common to all areas of pathology and to medicine in general, the clinical practice of hematopathology is on the forefront as a model of integration of traditional morphologic methods with rapid improvements in molecular diagnostic testing. In many cases, these molecular studies are crucial for diagnosis, classification, treatment, and prognostic determination. Accordingly, the educational objective of the selective hematopathology program is for the trainees to develop advanced expertise in the diagnostic and research applications of these clinically important technological advances in hematopathology. The program's faculty is composed of pathologists with subspecialty certification in hematopathology, molecular genetics, and transfusion medicine, respectively.

Most fellows pursue this fellowship training after a "traditional" hematopathology fellowship, which leads to ABP subspecialty certification. Although the selective hematopathology fellowship can be taken alone, it does not lead to board eligibility. The selective hematopathology

fellowship program is 1 year long, and it focuses on the technical and research applications in the areas of immunophenotyping by flow cytometry, immunohistochemistry, molecular diagnostics, and cytogenetics. Near the end of the fellowship, the trainees also rotate through the clinical service for review of bone marrow and lymph node histopathology. In addition, early on in the training the fellows identify an area of research and then complete one or more clinical research projects during the fellowship. Fellows' research activities are supported by departmental funds, and state-of-the-art technologies, such as cDNA microarray, next-generation sequencing, 8-color flow cytometry, and fluorescence-activated cell sorting, are available for these projects. The fellows do not take call during the training.

Most of the selective hematopathology program graduates pursue careers in academic or private practice hematopathology.

COMPARISON OF AAPs AND NAPs IN SELECTIVE PATHOLOGY

To compare AAPs and NAPs in selective pathology, a brief online survey of programs was performed. The survey was created with software by SurveyMonkey.com (<https://www.surveymonkey.com>; accessed May 2013), and a link to the survey was sent to program directors and program coordinators via the program directors' and program coordinators' listservs. There were 58 respondents: 40 were from AAPs, 17 were from NAPs, and 1 respondent did not indicate his or her program's accreditation status.

Responses from NAPs and AAPs demonstrated several interesting contrasts. The NAPs were more likely to offer fewer positions (88% offered a single position) than AAPs (42.5% offered more than 3 positions). The NAPs were less likely than AAPs to fill at least 1 position per year (47% versus 80%). In addition, NAP fellows were much less likely than AAP fellows to seek and be offered jobs that used the specific skills of their selective pathology training (35% versus 62%).

The major sources of funding for both AAPs and NAPs were the program's pathology department and hospital/academic affiliation(s). However, NAPs also significantly relied on other sources of funding, such as cooperating nonpathology departments (24%) or grants (29%). Centers for Medicare and Medicaid Services funding was available for a minority of AAP programs (5%). A total of 12% of NAPs and no AAPs relied on the fellows themselves to fund at least part of their own training. A total of 91% of all respondents felt that one or more sources of funding were in jeopardy of being withdrawn in the next 3 years, with the most likely cuts in funding being made from the program's pathology department's and/or hospital/academic affiliation's support for graduate medical education. Despite possible future funding deficits, most programs planned either no changes (86%) or an increase (7%) in the number of positions offered in the next 3 years.

The major reasons given for seeking ACGME accreditation were to meet the requirement for funding, to enhance the value of the training to future employers, or to attract higher-quality applicants. Reasons for not seeking ACGME accreditation varied. Some respondents cited the additional administrative effort, the absence of a requirement by the program's funding source for program accreditation, the lack of a benefit to the program from accreditation, or

ineligibility of the program to meet the qualifications for accreditation. Another reason cited for not seeking accreditation was that it would disallow listing the fellows as junior faculty, and hence would result in the exclusion of reimbursement for their clinical services.

SELECTIVE PATHOLOGY PROGRAM REQUIREMENTS

Program requirements for residency and subspecialty fellowship programs specify the curriculum and training that serve as the basis to achieve the educational objectives of the training programs. A program must meet these requirements to obtain and maintain ACGME accreditation. Among its activities, the review committee (RC) for pathology of the ACGME is responsible for the development of program requirements for new pathology subspecialties. As part of this process, the RC for pathology seeks comments from the corresponding specialty societies, as well as from the Program Directors Section of the Association of Pathology Chairs and others with an interest in pathology graduate medical education. Finally, the program requirements developed by the RC for pathology must be approved by the ACGME Board of Directors before they become effective.

Notably, although program requirements have long been in place for the APCP core residency and each of the ABP-certified subspecialty fellowships, there were no program requirements specifically dedicated to selective pathology training. Instead, programs were relegated to using the relevant sections of the core residency program requirements, a practice that was often awkward and did not adequately represent the unique focus and training experiences of these programs. Accordingly, because of the need for clearly identified expectations for selective pathology training, in 2010 the RC for pathology undertook the development of program requirements for this fellowship. Throughout this process, the overall goal of these program requirements was to reach a balance between being broad enough to encompass the diverse and innovative qualities of selective pathology programs, and being specific enough to satisfy both the ACGME and RC for pathology as substantive and meaningful training requirements that could be readily identified, documented, and tracked.

The ACGME and the RC for pathology agreed that the best strategy was to develop a single set of program requirements to encompass the 3 designated areas of selective pathology: surgical pathology, focused AP, and focused CP. The strength of this approach was that it circumvented the need for a separate set of program requirements for each of the many subspecialty areas and innovative training programs encompassed in selective pathology. However, development of a single set of program requirements to cover the diverse spectrum of training across selective pathology programs was challenging. To address this challenge, the RC for pathology developed a single document with 3 separate tracks: track A, surgical pathology; track B, focused AP; and track C, focused CP. Track-specific requirements are indicated throughout the document. In addition, the program requirements in selective pathology that apply to all 3 tracks are analogous to those developed for the recently approved revisions (effective July 2013) for all of the ABP-certified subspecialty fellowships; this was done on purpose, to achieve a uniform standard of training across all of the pathology fellowships.

Throughout the program requirements development process, the RC for pathology sought feedback from the pathology community. Because selective pathology fellowships cover a wide variety of subspecialty areas in AP and CP, key pathology organizations were specifically asked for their input, particularly on the medical knowledge and patient care sections of the program requirements. The organizations contacted were the United States and Canadian Academy of Pathology, the American Society for Clinical Pathology, the College of American Pathologists, the Association of Directors of Anatomic and Surgical Pathology, the Academy of Clinical Laboratory Physicians and Scientists, the ABP, and the Program Directors Section. In addition, the working draft of the program requirements was available on the ACGME Web site starting in December 2012 for 45-day-long "review and comment" period. During this time, the program requirements were available to the public for open comment, and the RC for pathology responded to each comment.

These newly developed selective pathology fellowship program requirements were approved by the ACGME Board of Directors in June 2013. They became effective immediately thereafter and are available on the ACGME Web site.⁶ A program application form devoted specifically to selective pathology became available on the ACGME Web site in August 2013.⁷ The approval of program requirements devoted specifically and solely to these fellowships is a further indicator of the recognition of selective pathology training. Importantly, these program requirements encompass and intentionally allow for the diversity of subspecialty training and innovative curriculum that characterize selective pathology fellowships.

Milestones for selective pathology fellowships are currently being developed. The target date for completion of these milestones is June 2014.

VALUE OF SELECTIVE PATHOLOGY TRAINING TO EVENTUAL CLINICAL PRACTICE

Pathology residents, as well as practicing pathologists in both the private sector and academia, have identified the value of selective pathology training to their eventual clinical practice. A recent survey of pathology residents found that the significant majority (89%) planned to continue their education in a fellowship program, and 27% planned to do 2 fellowships.⁸ Of note, almost half of the residents (47%) listed a fellowship in an area of selective pathology as their first choice for their fellowship training. Increased "marketability" and subspecialist expertise were given as the primary reasons for pursuing fellowship training. Pathologists in private practice and academia also have identified the importance of this additional training. A frequently cited survey of community hospital pathologists about their hiring practices found that many groups require postresidency fellowship training, with an almost universal expectation for selective pathology fellowship training in surgical pathology.⁵ In addition, a survey of predominantly academic surgical pathology practices found that the vast majority are at least partially subspecialized.⁹ Specifically, 87% of practices had obligate primary subspecialty surgical pathology sign-out services in specific areas of pathology other than those certified by the ABP. As a result of this increasing prevalence of subspecialty sign-out, the importance academic surgical pathology employers place on the subspe-

cialty training provided by selective pathology programs will likely continue to increase.

The value of selective pathology subspecialty training is recognized not only by pathologists but by clinical subspecialists as well. Patient care in academic medical centers has long benefited from the expertise provided by pathologist experts within the many non-ABP-certified subspecialty areas. As a result, many subspecialty clinicians in academic practice highly value (and expect) collaboration with a pathology colleague with the corresponding subspecialty expertise. This expectation for pathology subspecialists also extends into the private sector. Clinical specialists in private practice (eg, gastroenterologists, gynecologists, and urologists) increasingly require that the pathology group that performs their specimen diagnostic services must have at least one pathologist with the respective subspecialty expertise. As a result, in their recruitment practices private sector pathology groups are placing increasing importance on the subspecialty training provided by selective pathology programs. In addition, the widespread emergence of medical subspecialty centers of excellence in both academic and community-based practices has resulted in the expectation for corresponding pathology subspecialty expertise. This, in turn, will only increase the interest in selective pathology training in the many non-ABP-certified subspecialties.

CONCLUSIONS

Although selective pathology fellowships have a long-standing history of developing trainees with advanced expertise in specific areas of pathology other than the subspecialties certified by the ABP, the widespread interest in this training continues to grow. The recent approval of program requirements devoted specifically and solely to

these fellowships is further recognition by the ACGME of selective pathology as distinct subspecialty training. Pathology residents, as well as practicing pathologists in both the private sector and academia, recognize the value of selective pathology training for their eventual clinical practice. Importantly, the diversity and innovation inherent in selective pathology allow these programs to adeptly address new subspecialty areas and technologic advances in the current and evolving practice of pathology.

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