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PERSPECTIVE



Part 6: Essentials of Neonatal–Perinatal Medicine fellowship: program administration

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A successful Neonatal–Perinatal Medicine fellowship (NPM-F) program requires presence and insight of national and institutional supervisory organizations as well as effective program-specific leaders: program director (PD), associate program director (APD), program coordinator (PC), and core faculty. It is becoming more common for PDs and APDs to have advanced training in medical education and conduct medical education research. While NPM-F program leaders benefit from a strong national NPM educator community, they face challenges of increased regulatory burden and unclear national guidelines with variable local interpretation for protected time. National and local organizations can support program leaders and promote their academic success while reducing burnout and turnover by providing leadership training, academic mentoring, and adequate protected time for research and program-specific tasks.

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INTRODUCTION

Program administration of a NPM fellowship (NPM-F) includes national, institutional, and local stakeholders who together ensure that each program graduate possess the necessary skills and experience for independent practice. The objective of this article, the sixth of a seven-part series, is to describe the NPM-F program administrative roles, responsibilities, and available resources, and propose potential solutions to challenges facing today's program leaders.

National stakeholders

Neonatal–Perinatal Medicine (NPM) fellowship programs are governed by the Accreditation Council for Graduate Medical Education (ACGME) which designates NPM as a subspecialty of the core specialty of pediatrics. During the 36-month training period, trainees are expected to develop an understanding of the physiology and pathophysiology of the fetus and neonate and the cognitive and technical skills necessary to be competent clinicians, educators, and scholars [1]. While the ACGME is responsible for setting standards for the training experience and ensuring program compliance, the American Board of Pediatrics (ABP) sets standards for individual certification.

Program director

All GME training programs are required to have one person, designated the program director (PD), who is accountable for overall management of the program. Appointment of the PD is approved by key stakeholders: the division chief and department chair, the institution's Graduate Medical Education Committee (GMEC) and Designated Institutional Official (DIO), and the ACGME

(Table 1). The ACGME delineates the expectations of the PD regarding program management and gives the PD the authority to enact and enforce program requirements [1]. The PD must have current certification in NPM, be knowledgeable about administration, and be a role model for “outstanding professionalism, high-quality patient care, educational excellence, and a scholarly approach to work” [1] as evidenced by peer-review publications. PDs serve as mentors, “guiding fellows in the acquisition of competence in the clinical, teaching, research and advocacy skills pertinent to the discipline” [2].

The PD is responsible for designing and executing an effective educational experience to facilitate achievement of each of the ACGME Competency domains. This role includes developing and overseeing evaluation of program faculty and ensuring that all faculty involved with fellow education are effective role models of the core competencies. The PD “must have responsibility, authority, and accountability for: administration and operations; teaching and scholarly activity; fellow recruitment and selection, evaluation, and promotion of fellows, and disciplinary action; supervision of fellows; and fellow education in the context of patient care” [1]. The PD is responsible for communicating with the fellows, faculty, and other stakeholders on behalf of the program. The PD and the ABP share the responsibility of verifying the competence of NPM-F graduates to the public. The PD provides comprehensive end-of-program verification to the ABP in order for the NPM-F graduate to be a candidate for the initial certifying examination [3].

The medical educator community has applied an enhanced degree of scientific rigor to the study of best educational practice in GME. PDs are increasingly devoting their scholarly efforts to medical education topics and pursuing formal training in

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Table 1. Stakeholders involved in program administration.

	Organization/Person	Role	PD Interaction with Organization/Person
National	American Board of Pediatrics (ABP)	<ul style="list-style-type: none"> • Independent, non-profit organization • Certifying board of the American Board of Medical Specialties • Establishes requirements for certification, sets examination standards • Sets standards for fellow scholarly work and clinical experience 	<ul style="list-style-type: none"> • Holds annual Subspecialty In-Training Examination for fellows and provides PD with results • PD updates fellow roster annually • PD submits end-of-training fellow verification and scholarly work product
	Accreditation Council for Graduate Medical Education (ACGME)	<ul style="list-style-type: none"> • Private, not-for-profit organization • Sets standards for and accredits US GME programs and sponsoring institutions 	<ul style="list-style-type: none"> • Annual Program Evaluation • Annual ADS update • Self-Study • 10-Year Site Visit • Report fellow milestones twice yearly • Annual national and regional conferences provide updates and education to PDs • ACGME performs annual survey of fellows and faculty and provides PD with results
	Association of Pediatric Program Directors (APPD)	<ul style="list-style-type: none"> • Serves pediatric program directors by providing career development, promoting educational innovation and research, and leading advancement of medical education • Share Warehouse: peer-reviewed documents and resources • LEAD: leadership program • LEAPES: program for advancement of Pediatric GME Specialists • LEARN: infrastructure for multi-centered collaborative research 	<ul style="list-style-type: none"> • Fall and Spring annual meetings with updates from regulatory stakeholders and educational sessions on key topics in medical education • Forum for Fellowship Directors: Friday before start of Pediatric Academic Societies Meeting
	Association of American Medical Colleges (AAMC)	<ul style="list-style-type: none"> • Not-for-profit • Dedicated to transforming health care through medical education, patient care, medical research, and community collaboration • Electronic Residency Application Service (ERAS): centralized online application service to transmit application, letters of recommendation, and supporting documents to program directors 	<ul style="list-style-type: none"> • Review applications in ERAS • Can use ERAS to invite applicants and schedule interviews
	National Resident Matching Program (NRMP)	<ul style="list-style-type: none"> • Private, non-profit organization designed to provide a fairly and orderly process for matching preferences of applicants with preferences of fellowship directors 	<ul style="list-style-type: none"> • Yearly registration for the binding "Match" • Rank applicants • NRMP informs applicants and programs of Match results
Institutional	Graduate Medical Education Committee (GMEC)	<ul style="list-style-type: none"> • Institutional level leadership • Approves changes in program director and program size 	<ul style="list-style-type: none"> • Reviews and approves changes in program director • Reviews and grants approval for program expansion
	Designated Institutional Official (DIO)	A single person with the authority and responsibility for oversight and administration of residency and fellowship training programs at an ACGME-accredited institution	<ul style="list-style-type: none"> • Ensures all GME programs at institution maintain standards as outlined by the ACGME
Program	Program director (PD)	A single person with the authority and responsibility for the oversight and administration of a residency or fellowship program. Accountable for overall program compliance	
	Associate Program Director (APD)	Assists the PD in one or more areas of program education and/or administration	
	Program coordinator (PC)	Performs numerous administrative tasks associated with the program, including but not limited to, the organization of candidate interviews, scheduling conferences, meetings, scholarly oversight committee meetings, administrative liaison to the GME office, organizing orientation, onboarding, graduation; clinical working hour reports	<ul style="list-style-type: none"> • Constant communication with PD

Table 2. A Year in the Life of the Fellowship Program.

	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Orientation	X	X										
ERAS applications released	X											
ACGME Web Accreditation Data System (ADS) update		X										
GME tracker database		X										
Register for match			X									
Recruitment		X	X	X	X							
General Pediatrics Initial Certifying Examination				X								
Match day					X							
ITE								X	X			
Register for ITE						X	X					
CCC					X						X	
Semi-Annual individual meetings						X						X
Milestones reporting to ABP							X					X
ACGME survey								X	X			
Graduation												X
PEC meeting										X	X	X
Annual retreat ^a								X	X	X		
Annual GME program survey										X	X	
APE												X
Alumni survey ^{a,b}	X	X	X	X	X	X						X

CCC Clinical Competency Committee, ABP American Board of Education, APE Annual Program Evaluation, GME Graduate Medical Education, PEC Program Evaluation Committee, ITE In Training Examination.

^aProgram-specific timing.

^bPractices vary, from 1–3 surveys at intervals of 6 months, 3 years, and 5 years.

andragogy [4, 5]. The PD who is a professional medical educator promotes best practices in medical education relating to topics such as evaluation of trainees, curriculum design/implementation, procedural skill acquisition, and provision of feedback and coaching [6–8].

The PD role continues to expand due to increasing breadth and complexity of the clinical enterprise, increased expectations and quality of educational curricula, and mounting complexity of regulatory compliance [9]. The growing complexity of the GME landscape has resulted in a large portion of the PD's time being consumed by administrative and regulatory responsibilities (Table 2). As such, it is essential for PDs to surround themselves with a capable leadership team.

Leadership team

Members of the NPM-F program leadership team include a program coordinator (PC) to provide administrative support, the core faculty, and the division or section chief. All programs are required to have a PC, who must be “provided with support adequate for administration of the program based upon its size and configuration” [10–12]. The PC plays an essential role in both the day-to-day administration as well as the organization of all major events in the fellowship, such as recruitment/interviewing, onboarding, orientation, graduation, and scheduling meetings and conferences. The PC must possess leadership and personnel management skills and be well-versed in national (ACGME and ABP) and institutional (GME and human resources) stakeholder regulations. A PC's primary role and career path is generally GME training program administration, although some may have additional administrative tasks separate from the training program. As such, the PC provides a wealth of expertise to the PD and fellows and is an important resource of information and training for other PCs.

Given the many responsibilities of a PD, the majority of programs benefit from one or more Associate/Assistant Program Director(s) (APD) [12]. An APD may focus on a specific aspect of the program (e.g., education, simulation, scholarly activity, candidate review, or interviews) under the supervision of the PD. The role of APD also serves an important pathway for training future PDs. The division/section chiefs support the PD by engaging faculty and interdisciplinary personnel in trainee teaching, evaluation, and supporting change management initiatives.

All faculty are required to demonstrate a strong interest in the education of fellows, devote sufficient time to the educational mission, pursue annual faculty development, and regularly participate in clinical conferences, discussions, and journal clubs. Working with a fellow is a privilege that is earned through effective teaching and professional role modeling and the PD may revoke the privilege if the standards of the clinical learning environment are not met [1].

Faculty also participate in recruitment and serve on the Clinical Competency and Program Evaluation Committees (CCC, PEC). While all faculty in the training program are expected to participate in clinical oversight and education, Core Faculty “have a significant role in the education and supervision of fellows and must devote a significant portion of their entire effort to fellow education and/or administration and must, as a component of their activities, teach, evaluate, and provide formative feedback to fellows” [10]. Core Faculty must also engage in ongoing scholarly activity demonstrating overall accomplishment in at least 3 domains (Table 3). It is required that the CCC and PEC include at least one Core Faculty member. In addition, Core Faculty generally hold formal roles in the recruitment process and are actively involved in supporting fellow research through mentorship and participation in Scholarly Oversight Committees [11].

Table 3. Faculty scholarly activity domains [23].

Research in basic science, education, translational science, patient care, or population health
Peer-reviewed grants
Quality-improvement and/or patient safety initiatives
Systematic reviews, meta-analyses, review articles, chapters in medical textbooks, or case reports
Creation of curricula, evaluation tools, didactic educational activities, or electronic educational materials
Contribution to professional committees, educational organizations, or editorial boards
Innovations in education

Recruitment

Annual fellow recruitment is a critical and time-consuming task for the program administration. Recruitment starts with a priori development of a program mission statement and aims to appropriately focus recruitment efforts. The process begins in summer with application review using the Association of American Medical Colleges (AAMC) Electronic Residency Application Service (ERAS) and continues with registration with the National Residency Matching Program (NRMP), candidate selection, interviews, ranking, and ends in late fall with fellowship match day (Table 2). Successful execution of this complicated, yet necessary, process requires significant expenditures of time and energy by program leadership and faculty. Effective recruitment that achieves the program's aims relies on division and department leadership to encourage and incentivize the involvement of the faculty. The final paper in this series will explore careers in NPM and the challenges of recruiting a diverse workforce and physician scientists.

Resources

Advanced degrees in education are increasingly common among PDs and APDs. There are several master-level degree programs in education specifically for medical educators (Master of Health Professions Education, Master of Education, Master of Science in Education). Recipients of these advanced degrees are better equipped to apply best practices in education in the realms of teaching, feedback, curriculum design, assessment, and evaluation and undertake medical education research. Medical education research in GME is critical to advance the understanding of the most effective methods in teaching and training programs. Advanced educational programs designed for medical educators provide expertise in implementation of new educational strategies while fostering networking within a community of practice [13].

Stakeholder organizations also provide opportunities for PDs from all specialties to enhance knowledge necessary to meet the increasing complexity of the GME environment. The ACGME offers an annual course for new PDs on navigating the regulatory requirements of stakeholder organizations. For pediatrics and the pediatric subspecialties, the APPD provides workshops at their annual meetings to orient new PDs and enhance the skill set of experienced PDs. The APPD also provides a forum for collaboration and discussion as well as a shared warehouse of documents and resources for PDs across the pediatric subspecialties (Table 1).

The Organization of Neonatal-Perinatal Medicine Training Program Directors (ONTPD) was formed in 1992 as a subgroup of the American Academy of Pediatrics (AAP) Section on Neonatal-Perinatal Medicine (SONPM) to "provide an annual forum for PDs to identify and address issues relevant to NPM Fellowship Training" [14, 15]. It has expanded beyond an annual forum to a tight knit community of educators that provides PD-focused support, leadership, formal mentorship, advocacy, networking, research opportunities, and education [15].

Formal meetings of the ONTPD are designed around professional development and engagement with ABP/ACGME and includes an annual PD bootcamp. Calls have been made for increased prioritization of "multiinstitutional NPM education" given the wide variation in neonatology competency and skill with which graduated pediatricians enter NPM fellowship [16]. In recent years, many pediatric residency programs have reduced or eliminated 24-h call and reduced trainee time spent in the NICU, resulting in a steeper learning curve when starting NPM fellowship. This situation shifts much of the burden for foundational neonatal procedural and knowledge education from the residency program to the NPM PD. Intentional networking and creation of educational scholarship opportunities for collaboration among NPM programs have resulted in the neonatal national physiology curriculum, a neonatal simulation curriculum, and the largest RCT in GME education [8].

ONTPD has addressed the challenges of PD turnover through community engagement for support. The advent of mobile apps has allowed the ONTPD community to engage on an asynchronous and ongoing basis, crowdsourcing problems facing PDs quickly, and to share resources. During the COVID-19 pandemic, weekly Virtual Cafes allowed PDs to leverage community to address dynamic clinical, educational, and research challenges.

Resources for PCs include the active APPD Coordinators' Section with workgroups that provide mentoring and communication, and an opportunity to meet at the annual Grassroots Forum for Coordinators at the APPD Annual Spring Meeting. APPD LEAPES is a 9-month longitudinal course that provides training for "administrators aspiring to develop the knowledge and skills needed to become leaders in medical education" [17]. The Organization of Neonatal Program Coordinators formed in January 2021 to support collaboration nationally amongst NPM-F PCs.

Challenges

Training the best future neonatologists requires successful NPM fellowship administration. Challenges include lack of leadership training, burnout, and turnover which are related to inconsistent implementation of ACGME stipulations for PD protected time and lack of nationally mandated protected time for NPM APD, PC, and Core Faculty. Increasing regulatory mandates coupled with uncertain expectations places fellowship programs in a very high stakes position [9].

Program leaders must possess effective leadership skills, but most PDs do not receive leadership training prior to assuming the role. Historically in medicine, leadership skills have often been acquired by direct experience rather than through dedicated leadership training. PDs generally look to division chiefs, DIOs, or past PDs for formal or informal mentorship. Despite calls for formal leadership training in medicine, many physicians (including those in GME) find themselves in roles of authority desiring training to gain fundamental leadership skills such as conflict resolution, motivation, change implementation, leading up, and strategic thinking [18, 19]. Furthermore, APDs report insufficient training in necessary skills related to curriculum development and performance evaluation and a lack of formal academic mentorship [19].

Lack of adequate protected time and support for fulfilling program leadership responsibilities contributes to burnout and leader turnover, which negatively affects fellow training continuity and program stability [20]. Fulfillment of the responsibilities of all program leaders requires time. The ACGME expects PDs to have protected time to perform their programmatic responsibilities and has outlined the required full-time equivalent (FTE) for PDs based on the number of fellows per program (Table 4) [1, 10, 21]. However, a recent survey of NPM PDs found that only half received ACGME-expected FTE for fellowship administration [12]. With the further requirement for ongoing scholarly activity, many PDs face challenges as they attempt to balance research, program management, and clinical duties.

Table 4. Expected FTE for program director.

Program Size	% FTE required ^a
0–3 fellows	20%
4–6 fellows	25%
7–9 fellows	30%
≥10 fellows	35%

^a20% FTE (FTE full-time equivalent): 1 working day or 8 h per week of non-clinical time (not including scholarly activity); minimum combined time for program leadership (PD and APD) [21].

Similarly, APDs report lack of time as one of their top concerns regarding their APD position. This concern is a key reason that only 39% aspire to become a PD, because the PD role requires “more protected time than they are able to give” [19]. Other concerns voiced by APDs include difficulty engaging faculty in teaching and evaluation and absence of a formal job description. The lack of formal job description may result from the fact that the ACGME does not currently formally recognize the role of APDs and therefore does not provide separate FTE allocation recommendation for this position. New FTE time requirements recently proposed by the ACGME and under review would increase program director FTE requirements for programs with 7 or more approved fellow positions (0.4 FTE for 7–10 fellows, 0.5 FTE for 11–15, 0.6 FTE for > 15). Programs with 4–6 fellows would have a decrease in FTE for program directors [22].

Although their role is formally recognized by the ACGME, PCs are also affected by burnout and turnover. ACGME specifies time allocation for a general pediatrics PC at a minimum of 50% FTE (2.5 days per week), with a minimum of 1 PC for programs with 12–30 approved positions; however, the ACGME does not stipulate time allocation for NPM-F PCs. The lack of explicit guidance for NPM-F PCs leads to inconsistent local practices regarding PC allocated time.

Recommendations

Organizational and national stakeholders can provide potential solutions to NPM-F program administration’s lack of leadership training, burnout, and turnover. Organizations and division or section chiefs should make available formal leadership instruction to all program administration, including APDs. Ideally, leadership training would begin before the role is assumed. Division or section chiefs can ensure that APDs have a formal job description (a sample can be obtained on the APPD “Share Warehouse”) and receive structured academic mentoring.

Providing appropriate protected time for program administrative tasks in addition to teaching and scholarly work will ensure successful longevity in the NPM administrative role. The extensive time required for the administration of an NPM-F program plays a large role in leader burnout and turnover. Variable local interpretation of the current ACGME guidelines regarding FTE have resulted in many program leaders not receiving adequate time allocated for program management. National organizations should advocate for appropriate provision of protected time for the PD, APD, PC, and Core Faculty. The ACGME is exploring an expansion of the regulations regarding time allocation to more accurately reflect the entire leadership team [22] but revisions currently underway stop short of mandating protected time without reducing salary support for NPM PDs and APDs. Protected time and resources are often not available because of the nature of fellowship funding. A national call should be made for changes in the allocation of funding with the intention of consistently providing NPM-F leaders the necessary FTE to run a program and prevent burnout. The NPM leadership community should engage with regulatory agencies to investigate ways to

ameliorate the burden of increased regulation and to champion national ACGME-defined protected FTE for NPM-F program administration.

Finally, institutions must support advanced training for PDs and PCs and provide pathways to promotion for medical educators and program administration. Programs and PDs are strongly encouraged to support the professional development of PCs.

Keys to NPM-F program success include maintaining opportunities for program leaders to further professional development through a strong national professional organization as well as support at the program level for pursuing training in leadership and medical education. Individual programs should ensure the PD has the training, time, financial support, and freedom to work within their role as delineated by the ACGME to ensure that the clinical environment, scholarly opportunities, career mentorship, and faculty involvement are optimal for a successful NPM fellowship program.

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AUTHOR CONTRIBUTIONS

MGK and JS wrote the primary draft; MGK, JS, PM, and EB performed revisions; all authors reviewed the final manuscript.

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COMPETING INTERESTS

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ADDITIONAL INFORMATION

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