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Optimizing care for patients with infectious diseases: Roles of emergency medical services and nursing

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***Abstract*---Background:** Internal medicine (IM) and its subspecialties have seen a shift in care delivery, increasingly relying on nonphysician practitioners (NPPs) such as nurse practitioners (NPs) and physician assistants (PAs). This article focuses on the development of a curriculum and competency framework for advanced care practitioners (ACPs) specializing in infectious diseases (ID). **Aim:** To establish a comprehensive competency-based education (CBE) model for NPs and PAs in ID, aiming to enhance their skills and optimize patient care. **Methods:** The framework incorporates six core competencies endorsed by various regulatory and professional organizations. An interprofessional approach was utilized to develop a curriculum that addresses the educational needs of ACPs in ID practice, along with assessing Entrustable Professional Activities (EPAs). **Results:** The proposed guidelines outline specific clinical responsibilities and milestones for ACPs over a one-year training period. This structured approach ensures that ACPs develop competencies in patient care, medical knowledge, interpersonal skills, professionalism, and systems-based practice, allowing them to effectively manage common and complex infectious diseases. **Conclusion:** The integration of ACPs into infectious disease practice is vital for enhancing patient care and alleviating resident workload. By providing a solid foundation for ongoing education and professional development, this competency framework aims to promote collaboration between physicians and ACPs, ultimately improving healthcare outcomes.

***Keywords*---**infectious diseases, advanced care practitioners, competency-based education, nurse practitioners, physician assistants, healthcare delivery.

Introduction

Internal medicine (IM) and its subspecialties represent the largest group of practicing physicians. However, modifications in the healthcare delivery system have influenced how IM is practiced, leading to a greater dependence on nonphysician practitioners (NPPs). NPPs are certified professionals who deliver healthcare services either in collaboration with or under the supervision of physicians. The Centers for Medicare and Medicaid Services (CMS) recognize both physicians and NPPs as healthcare providers across a wide range of environments. NPPs include physician assistants (PAs), nurse practitioners (NPs), clinical nurse specialists, certified nurse midwives, and certified registered nurse anesthetists [1]. This article focuses on NPs and PAs, referred to collectively as advanced care practitioners (ACPs). The introduction of six core competencies by the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Medical Specialties (ABMS) forms the cornerstone of outcomes-based undergraduate and graduate medical training, board certification, and the maintenance of certification, while also offering a significant opportunity to establish a continuous learning and assessment framework in medicine [2–5].

Given the expanding responsibilities of ACPs, we have developed a curriculum and competency guideline for nurse practitioners (NPs) and physician assistants (PAs) specializing in infectious diseases (ID). An interprofessional, competency-based education (CBE) model using six core competencies was employed to evaluate Entrustable Professional Activities (EPAs) development [2–7]. Our framework is derived from recommendations and/or guidelines from regulatory agencies, task force educators, and professional organizations representing internal medicine (IM), nursing, and PAs [2–5, 8–18]. These six core competencies guide the development of our proposed curriculum and competency framework for ACPs in ID. Academic institutions that are committed to advancing ACP education often provide training programs for medical residents and fellows. ACPs play a crucial role in reducing resident workload, enhancing continuity of care, and contributing to patient coordination education [19–22]. Surveys of medical trainees and program directors (PDs) suggest that the involvement of ACPs has a positive impact on medical education [20, 21]. Integrating well-trained ACPs with residents fosters leadership development in residents, improves the balance between service and education, and promotes interprofessional teamwork, thereby strengthening the academic-practice partnership [22–24]. The inclusion of ACPs in subspecialty practice requires careful consideration to optimize the education of resident physicians while promoting the professional growth of ACPs who aim to prepare for specialized medical practice. We anticipate a robust and ongoing partnership between physicians and NPPs in the healthcare setting, extending far beyond the training phase.

ACPs within Northwell Health, a large healthcare network in the New York City metropolitan area with 23 hospitals and numerous outpatient facilities, have access to clinical settings and educational resources. The Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, established in 2011, has since expanded Hofstra University's PA program and founded the Hofstra-Northwell School of Nursing, which offers Master's and doctoral degrees.

As the scope of infectious diseases (ID) practice covers a broad range of illnesses, ACPs in this field must be adept in diagnosing and managing both common and complex infections, particularly those with the potential for clinical deterioration and life-threatening outcomes. ID ACPs should be knowledgeable about microbiological identification, antimicrobial susceptibility testing, and the appropriate interpretation of microbiological, serological, and molecular testing. They must also understand the correct utilization and application of antimicrobial agents and biologics, while building a solid foundation in healthcare epidemiology, infection control, and vaccination strategies. ACPs will be assigned progressive responsibilities, with specific milestones and competencies expected at each level.

While numerous postgraduate PA and joint PA/NP training programs are available in various specialties [25], there is significant variability in competency frameworks, as highlighted by Kesten and Beebe for NP education and training programs [26]. Although literature on educational initiatives and competency standards for trainees is growing [2, 4, 8, 11–18], there is limited literature addressing curricula and competencies for ACPs working in subspecialty practices. To our knowledge, no established guidelines or curricula currently exist

to comprehensively address ACPs' role in ID practice. In response to the evolving role of ACPs, we established a working group of healthcare leaders to develop curriculum and competency guidelines for NPs and PAs aspiring to specialize in ID, in line with national standards governing ACP licensure. The working group included experts in NP, PA, and physician education, as well as subject matter experts from Northwell Health's Division of Infectious Diseases. Our proposal is informed by an interprofessional approach based on the ACGME residency and fellowship training model, the American Association of Colleges of Nursing (AACN) competency standards, updated PA competency standards, and recommendations and guidelines from regulatory agencies, task force educators, and professional organizations representing internal medicine (IM), infectious diseases (ID), nursing, and PAs [2–5, 8–18]. Additionally, our document provides a template for utilizing competencies to assess Entrustable Professional Activities (EPAs) in practice. The proposed curriculum and guidelines emphasize the clinical hours required to achieve proficiency and significantly contribute to the existing literature for ACPs who have completed their training and are practicing in an ID subspecialty setting.

Goals and Objectives for Subspecialty ACPs

Our proposed curriculum and competency guidelines are structured around six core competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice [2–5, 8–18]. Subspecialty ACPs in infectious diseases (ID) are expected to achieve the following:

1. **Provide patient care** that is compassionate, appropriate, and effective, aimed at promoting health, preventing illness, and treating infectious diseases.
2. **Demonstrate knowledge** of established and emerging biomedical, clinical, and social sciences, applying this knowledge to patient care and contributing to the education of others in the field of infectious diseases.
3. **Utilize scientific evidence** and methodologies to investigate, evaluate, and enhance patient care practices in the subspecialty.
4. **Exhibit interpersonal and communication skills** that allow them to build and sustain professional relationships with patients, families, and other healthcare team members.
5. **Display professional behavior** that reflects a dedication to continuous professional development and ethical conduct, alongside an awareness and sensitivity to diversity and responsibility toward patients, the profession, and society.
6. **Understand the contexts and systems** in which healthcare is delivered, applying this knowledge to optimize healthcare delivery [9].

We provide a timeline that outlines the clinical experience of ACPs, detailing their progression of responsibility and the expected achievement of milestone competencies by the end of one year, in alignment with regulatory requirements for scope of practice under the supervision of an attending physician.

In the development of core competencies for ACP subspecialists in infectious diseases (ID) within inpatient and/or ambulatory settings, several patient care

objectives are set to be achieved over the course of one year under the supervision of an ID attending physician. During the first three months, ACPs are expected to conduct new ID consultations for at least two patients daily and follow up on three additional patients. They must gather accurate and relevant patient histories, either directly from the patient or from medical records, utilizing a prioritized and hypothesis-driven approach. ACPs should also seek out verified and prioritized data from secondary sources, such as family members, prior medical records, or pharmacy records, when necessary. Furthermore, they are required to perform precise physical examinations targeted to the patient's complaints and medical conditions, distinguishing between normal and abnormal findings. The ability to interpret physical examination results in the context of the patient's condition and track changes over time is essential. ACPs must synthesize data from interviews, physical examinations, and preliminary laboratory results to identify the patient's primary clinical issue. They will also begin managing common infectious diseases and making appropriate recommendations based on basic diagnostic tests, while recognizing when to seek further guidance.

By the end of six months, ACPs are expected to provide new ID consultations for at least three patients daily and follow up on six additional patients. At this stage, they should be adept at identifying subtle or unusual physical findings that may influence clinical decision-making and developing prioritized differential diagnoses and evidence-based therapeutic plans for common ID conditions. The ability to make clinical decisions based on more advanced diagnostic tests and tailor care to align with the patient's preferences and overall health is also emphasized.

By the end of the first year, ACPs are expected to demonstrate greater autonomy in patient management, building upon the skills acquired in the first six months. This includes managing a higher volume of patients and effectively integrating advanced diagnostic data into clinical reasoning, all while recognizing when to seek additional guidance as needed.

By the end of six months, the ACP specializing in infectious diseases (ID) is expected to demonstrate a solid understanding of the pathophysiology and fundamental science underlying common ID conditions. This includes developing proficiency in basic biostatistical concepts such as sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV). The ACP should also exhibit sufficient knowledge to effectively assess common ID conditions and have a firm grasp of the indications for and basic interpretation of standard diagnostic tests, such as routine blood chemistries, hematologic studies, coagulation tests, arterial blood gases (ABGs), electrocardiograms (EKGs), chest X-rays (CXRs), pulmonary function tests (PFTs), urinalysis, and analysis of other body fluids. Furthermore, they should demonstrate proficiency in conducting comprehensive patient histories and physical examinations, engaging in differential diagnosis, and managing therapeutics and follow-up care for chronic medical conditions.

By the end of the first year, the ACP will be expected to extend their knowledge to more complex ID conditions, including those with multiple coexisting factors. They should demonstrate a deeper understanding of the pathophysiology and

basic science related to less common or more intricate ID conditions. Additionally, they are expected to comprehend the indications for and acquire basic interpretive skills for more advanced diagnostic tests, building on the foundational knowledge acquired during the initial six months.

By the end of six months, the ACP specializing in infectious diseases (ID) is expected to identify their strengths, weaknesses, and knowledge gaps, while setting clear learning and improvement goals. They should recognize learning needs that emerge during patient care activities, articulate clinical questions with precision, and utilize medical information resources to support decision-making. This includes efficiently searching databases for original clinical research articles and evidence-based summaries, as well as determining the applicability of clinical evidence to individual patients. Additionally, they must respond openly to feedback from the healthcare team and integrate formative evaluations into daily practice. The ACP should begin systematically analyzing their practice through quality improvement methods, appraising and assimilating evidence from scientific studies, and utilizing information technology to enhance their learning.

By the end of the first year, the ACP is expected to expand these competencies by reflecting on their practice against local or national benchmarks, identifying contributing factors to deficiencies, and implementing changes to improve care processes and outcomes. They should engage in quality improvement interventions and appraise the quality of clinical guidelines, integrating evidence, context, and patient preferences into decision-making.

Regarding systems-based practice, by six months, the ACP is expected to appreciate the roles of diverse healthcare providers and work effectively as part of an interprofessional team. They should understand the social determinants of health and their influence on patient care, minimize unnecessary tests and procedures, and reflect on critical incidents. They should also apply cost-benefit analyses to patient care. By the first year, the ACP is expected to engage in system-level quality improvement, partner with other professionals to identify improvement opportunities, and create initiatives to enhance care at the institutional or system level.

In terms of professionalism, within three months, the ACP is expected to demonstrate empathy, compassion, and professionalism in relationships with patients, families, and staff, while recognizing the limits of their abilities and seeking supervision when needed. They should treat all patients with dignity and respect, maintain confidentiality, complete tasks promptly, and recognize healthcare disparities. By six months, they are expected to have solidified these behaviors as routine. For interpersonal and communication skills, by six months, the ACP is expected to provide timely and comprehensive communication to patients and their advocates, as well as accurate and complete written communication in line with medical standards. They should be proficient in using interpreters when necessary, demonstrate sensitivity to diverse patient backgrounds, deliver hypothesis-driven oral presentations, and communicate care plans effectively to the healthcare team.

Integration of Milestones and Core Competency Assessment for Subspecialty ACPs

Milestones represent a combination of knowledge, skills, attitudes, and other attributes that signify the attainment of competence necessary for advanced consultative practice. These milestones create a structure for evaluating the development of the infectious disease (ID) subspecialist advanced clinical practitioner (ACP). The ACP's progress is assessed based on each core competency [2–4]. During bedside rounds, the focus is on the ACP's capacity to establish differential diagnoses and formulate management plans in collaboration with care management teams. Direct observation of the ACP's competencies takes place during these rounds, and feedback from all attending healthcare providers is encouraged. As part of the ongoing professional practice evaluation (OPPE), the quality of patient care is closely scrutinized by the supervising ID attending, the Department of Quality Management, ACP supervisors, and academic department chairs. The ACP is provided with timely formative and summative feedback. Additionally, peer evaluations are conducted biannually by fellow nurse practitioners (NPs) or physician assistants (PAs), nurse managers, residents, and fellows, using a modified 360° review format. The ID ACP is also given the opportunity to assess their educational experience, including the performance of their supervising ID attending, other faculty, residents, fellows, and healthcare professionals they interact with. These assessments are confidential and written, offering critical feedback to optimize the ACP's learning experience. When the curriculum and competency standards are first introduced, it is advisable to designate an ID attending physician as the program director (PD), with selection criteria based on Accreditation Council for Graduate Medical Education (ACGME) standards [9, 10] and recommendations from NP and PA training directors. The PD, working alongside the ACP and a designated coordinator, will supervise the program and ultimately certify the competency of the ID subspecialist ACP.

Description of the ID Subspecialty Experience

The ID ACP curriculum will include a combination of direct patient care, didactic instruction, and self-guided learning. Both inpatient and outpatient settings will allow the ID ACP subspecialist to enhance their history-taking and physical examination abilities, broaden their differential diagnostic skills, gain experience in selecting appropriate diagnostic tests, and acquire expertise in managing a variety of infectious diseases. The ID ACP will work within a multidisciplinary team environment. In the inpatient setting, the ID ACP will be integrated into a consultation team led by a full-time faculty member from the Northwell Division of ID, which may include residents and medical students. ACPs will be assigned patient cases by the ID faculty and will evaluate both current patients and new consults referred by various medical services throughout the day. Daily rounds with the ID attending will emphasize bedside teaching, focusing on history-taking, physical examination, and clinical reasoning. The ACP's case presentation skills, data analysis, and formulation of differential diagnoses and treatment plans should demonstrate "graded responsibility" based on their level of training. Teaching rounds centered on patient care will be reinforced by didactic presentations grounded in evidence-based practice to ensure comprehensive coverage of infectious diseases. The ACP will communicate all consultation

recommendations to the primary care team or referring outpatient provider. These tables serve as a blueprint for the pathophysiologic and educational competencies and the assessment methods used to evaluate them. All ACPs are required to participate in the ID core lecture series, which covers foundational ID topics and reviews of evidence-based literature, either in person or via electronic access. Given potential scheduling conflicts, ACPs are also required to attend all activities during their shifts, including weekly didactic lectures presented by local ID faculty, which focus on additional essential topics in ID, as well as weekly ID Grand Rounds. These rounds include updates on clinical practice guidelines, case-based discussions with literature reviews, and presentations by nationally recognized experts in specialized areas of ID.

The **Infectious Disease (ID) Curriculum Components and Educational Objectives** offer a comprehensive structure for trainees to develop the necessary skills in managing infectious diseases. Here's a breakdown of the key areas:

Conferences and Meetings

- **Divisional ID Weekly Conference**: Orientation presentations and case-based learning sessions by division members, complemented by lectures from nationally recognized experts.
- **Annual Professional Society Meetings**: Opportunities to attend national conferences on patient care, research, hospital epidemiology, and antibiotic stewardship.
- **Site-Specific and Health System Meetings**: Focus on infection prevention, antibiotic stewardship, and the sepsis task force.
- **GME Events Relevant to ID**: Participation in resident reports, Medicine Grand Rounds, and other grand rounds with a focus on infectious diseases.

General Principles of Infectious Diseases

- **Host Defense Mechanisms**: Overview of the immune system and evaluation of patients with immunodeficiencies.
- **Epidemiology and Preventive Medicine**: Knowledge of vaccination practices and chemoprophylaxis.
- **Infection Control**: Basic principles of infection control, focusing on hospital-associated infections.
- **Laboratory Testing, Imaging, and Microbiology**: Interpretation of various tests, cultures, and imaging, including PCR and rapid blood culture identification.
- **Principles of Antimicrobial Therapy**: Understanding mechanisms of action, spectrum of activity, pharmacokinetics, adverse reactions, and cost of antimicrobial agents, along with stewardship and de-escalation strategies.

Medical Knowledge of Major Clinical Syndromes

Trainees will gain expertise in the diagnosis, treatment, and prevention of a wide array of infectious syndromes:

- **Fever and Bloodstream Infections**: Addressing both infectious and noninfectious causes.

- **Central Nervous System Infections**: Meningitis, encephalitis, and other related infections.
- **Respiratory Infections**: From common infections like sinusitis to more complex cases like TB and SARS.
- **Cardiovascular and Endovascular Infections**: Including native and prosthetic valve endocarditis.
- **Skin, Soft Tissue, and Bone Infections**: Addressing cellulitis, diabetic foot infections, osteomyelitis, and others.
- **Genitourinary, Gastrointestinal, and Prosthetic Device Infections**: Covering UTIs, abdominal infections, and infections involving implants or trauma.
- **Sepsis Syndromes**: Current knowledge on the immunological cascade and care modalities.
- **Hospital-Associated Infections**: Ventilator-associated pneumonia, catheter-related infections, and antibiotic-associated colitis.
- **Infections in Special Populations**: Managing infections in travelers, granulocytopenic patients, transplant patients, and individuals with HIV/AIDS.

Principal Educational Goals by Relevant Competency

1. **Patient Care**
    - **Goals**: Enhance history-taking, physical examination, differential diagnosis, and development of evidence-based management strategies.
    - **Learning Activities**: Attending rounds (AR), direct patient care (DPC), subspecialty sessions (SS).
2. **Medical Knowledge**
    - **Goals**: Develop a sound knowledge base in clinical syndromes and integrate pathophysiology with clinical care.
    - **Learning Activities**: AR, DPC, infectious diseases grand rounds (IDGR), SS.
3. **Practice-Based Learning and Improvement**
    - **Goals**: Continuously analyze and improve performance, integrate feedback, and use technology for data retrieval and analysis.
    - **Learning Activities**: AR, DPC, SS.
4. **Interpersonal and Communication Skills**
    - **Goals**: Effectively convey complex information, communicate with empathy, and engage with family members.
    - **Learning Activities**: AR, DPC, SS.
5. **Professionalism**
    - **Goals**: Treat patients with respect, maintain sensitivity to diverse backgrounds, and act as a role model for others.
    - **Learning Activities**: AR, DPC, SS.
6. **Systems-Based Practice**
    - **Goals**: Serve as an effective consultant, collaborate with healthcare providers, and understand the impact of health insurance on patient care.
    - **Learning Activities**: AR, DPC, IDGR, SS.

This curriculum is designed to foster both practical skills and theoretical knowledge essential for infectious disease specialists in various healthcare settings.

Discussion

The Accreditation Council for Graduate Medical Education (ACGME) common program requirements establish essential standards that training programs in the United States must meet for residents and fellows to graduate. These standards "create an environment conducive to the development of the skills, knowledge, and attitudes necessary for assuming personal responsibility for individual patient care. They also foster an environment where residents and fellows can engage with patients under the mentorship and oversight of qualified faculty who provide value, context, and meaning to those interactions" [9-10]. These ACGME standards serve as the foundational basis for designing our proposed Advanced Clinical Practice (ACP) curriculum and competency guidelines.

In response to the 2011 recommendation by the Institute of Medicine advocating for a Competency-Based Education (CBE) framework in nursing education, core competencies for Nurse Practitioners (NPs) were established to ensure graduates possess the essential knowledge, skills, and abilities for competent clinical practice. Chan et al. refined the initial core competencies presented by the National Organization of Nurse Practitioner Faculties (NONPF) and the American Association of Colleges of Nursing (AACN) for trainees in Bachelor of Science in Nursing (BSN)-Doctor of Nursing Practice (DNP) programs utilizing a CBE model [12-13]. Additionally, Wu et al. developed and validated a scale specifically designed to measure core competency achievement for Infectious Disease (ID) nurse specialists [14].

The National Commission on Certification of Physician Assistants (NCCPA) collaborated with three national organizations to define competencies for Physician Assistants (PAs) [15]. Postgraduate programs for PAs, initiated in 1973, have expanded to approximately 72 programs by 2020, covering various medical and surgical disciplines. Notably, not all these programs are accredited by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) for various reasons. The average duration of these programs is twelve months; however, less than 1% of PA graduates pursue a postgraduate program【28】. Although the NCCPA awards various discipline-specific certificates of added qualification, none currently exists for ID【29】. Moreover, the Association of Postgraduate Physician Assistant Programs does not list any specific PA or joint PA/NP postgraduate programs focusing on ID【25】. To our knowledge, there are also no ID fellowship programs solely for NPs in the United States.

At the MD Anderson Cancer Center, both inpatient and outpatient responsibilities were established based on recommendations from the American Society of Clinical Oncology aimed at expanding the workforce with mid-level providers. This initiative included participation in a multidisciplinary antimicrobial stewardship program in the intensive care unit. It was noted that many PAs working in ID had received "an abbreviated level of ID education during their formal training," and that "most of their clinical knowledge is acquired during on-the-job training," with

no formal curriculum or competency standards in place at that time【30】. Despite the absence of a structured curriculum, the integration of ACPs in ID has led to enhanced healthcare efficiency, notably decreasing the time to consultation and length of hospital stay following the incorporation of PAs into the ID consult service【31】. Gail et al. (2004) proposed a comprehensive curriculum at the Master's level for clinical nurse specialists and NPs entering the field of ID. This curriculum was categorized into a core segment encompassing courses in epidemiology, microbiology, immune response, ID nursing, pharmacology, culturally competent care, and nursing research methods. It was supplemented by additional coursework tailored to the anticipated role of the practitioner. For adult ID NPs, relevant courses included clinical assessment and management, diagnostic testing, decision-making, health promotion/disease prevention, and ID medicine【32】.

Training programs for ACPs specializing in ID have been documented, predominantly focusing on HIV care either as standalone efforts or integrated within a broader curriculum【33–36】. Hayes et al. examined the outcomes of incorporating HIV care coursework into NP training programs, which was embedded within a primary care curriculum【33】. McGee et al. at Duke University implemented a training program for NPs providing primary care to individuals with HIV, involving extensive clinical supervision alongside didactic education【34】. Farley's group at Johns Hopkins developed a curriculum incorporating HIV prevention, treatment, and care within the adult/geriatric NP program, allocating 50% of NPs' time to primary care and the other 50% to HIV-focused care【36】. Nevertheless, none of these training programs have been specifically designed to equip ACPs for comprehensive practice across the full spectrum of ID.

A significant gap remains in the literature regarding formal curricula and competencies for ACPs practicing in subspecialty Internal Medicine (IM). The integration of well-prepared ACPs alongside residents and fellows enhances collaboration and fortifies the academic practice partnership【6–10】. Our document lays the groundwork for defining the scope of practice, emphasizing clinical experience as the primary avenue for achieving competence while continuing to receive guidance and supervision throughout the process. To our knowledge, there are currently no established curriculum or competency guidelines for ACPs to deliver comprehensive ID practice. The proposed curriculum and competency guidelines adopt an interprofessional approach, incorporating essential elements required for competence achievement. Furthermore, our proposal significantly contributes to the existing literature for ACPs who have completed their training and are now pursuing careers as ID subspecialists; with modifications, it may also be applicable to other IM subspecialties.

Conclusion

The evolving landscape of healthcare necessitates an innovative approach to the education and training of advanced care practitioners (ACPs) in infectious diseases (ID). As the demand for healthcare services increases, particularly in

specialized fields such as ID, it becomes crucial to optimize the roles of NPs and PAs to ensure high-quality patient care. Our competency-based education (CBE) model is designed to prepare ACPs to meet these challenges by fostering a comprehensive understanding of both common and complex infectious conditions, enabling them to deliver effective patient management. Our curriculum emphasizes the importance of the six core competencies—patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice. By integrating these competencies into the training of ACPs, we aim to establish a solid foundation that supports not only individual professional growth but also enhances interprofessional collaboration within healthcare teams. The timeline we propose outlines clear expectations for ACPs, ensuring they progress through defined milestones that correspond to their increasing responsibilities in managing ID. Furthermore, the ongoing partnership between physicians and ACPs is crucial in enhancing medical education and fostering an environment of continuous learning. This collaborative approach not only supports ACPs in their professional development but also strengthens the educational experience for medical residents and fellows. The integration of well-trained ACPs into healthcare teams has been shown to reduce resident workload and improve the quality of care provided to patients. As healthcare continues to evolve, our proposed curriculum and competency guidelines will serve as a vital resource for academic institutions and healthcare organizations. These frameworks address the current gaps in training and competency standards for ACPs in ID, setting a precedent for future educational initiatives in other subspecialties. Ultimately, by equipping ACPs with the necessary skills and knowledge, we can enhance patient outcomes and ensure that healthcare systems are prepared to meet the challenges posed by infectious diseases in a rapidly changing environment. This initiative marks a significant step toward optimizing the role of ACPs in infectious disease practice and underscores the importance of a well-structured, competency-based educational framework in the healthcare delivery system.

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الملخص:

الخلفية :شهدت الطب الباطني (IM) وتخصصاته الفرعية تحولاً في تقديم الرعاية، حيث يعتمد بشكل متزايد على الممارسين غير الأطباء (NPPs)مثل الممارسين الممرضين (NPs) ومساعدي الأطباء .(PAs) يركز هذا المقال على تطوير منهج وإطار كفاءات للممارسين المتقدمين في الرعاية (ACPs) المتخصصين في الأمراض المعدية.(ID)

الهدف :إقامة نموذج شامل للتعليم القائم على الكفاءات (CBE) للممارسين الممرضين ومساعدي الأطباء في مجال الأمراض المعدية، بهدف تعزيز مهاراتهم وتحسين رعاية المرضى.

الأساليب :يتضمن الإطار ست كفاءات أساسية معتمدة من قبل منظمات تنظيمية ومهنية متنوعة. تم استخدام نهج متعدد التخصصات لتطوير منهج يتناول الاحتياجات التعليمية للممارسين المتقدمين في ممارسة الأمراض المعدية، بالإضافة إلى تقييم الأنشطة المهنية القابلة للتفويض (EPAs).

النتائج :توضح الإرشادات المقترحة المسؤوليات السريرية المحددة والمعالم للممارسين المتقدمين على مدى فترة تدريب مدتها عام واحد. يضمن هذا النهج المنظم تطوير الممارسين المتقدمين للكفاءات في رعاية المرضى، والمعرفة الطبية، والمهارات الشخصية، والمهنية، والممارسة القائمة على الأنظمة، مما يمكنهم من إدارة الأمراض المعدية الشائعة والمعقدة بشكل فعال.

الخلاصة :إن دمج الممارسين المتقدمين في ممارسة الأمراض المعدية أمر حيوي لتعزيز رعاية المرضى وتخفيف عبء العمل على المقيمين. من خلال توفير أساس متين للتعليم المستمر والتطوير المهني، يهدف هذا الإطار الكفائي إلى تعزيز التعاون بين الأطباء والممارسين المتقدمين، مما يحسن في النهاية نتائج الرعاية الصحية.

الكلمات المفتاحية :الأمراض المعدية، الممارسون المتقدمون في الرعاية، التعليم القائم على الكفاءات، الممارسون الممرضون، مساعدو الأطباء، تقديم الرعاية الصحية.