

# Leading an Academic Medical Practice

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*Editors*

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# Foreword

The Society of General Internal Medicine (SGIM) is pleased to offer our endorsement and support for this outstanding book. *Leading an Academic Medical Practice* had humble beginnings; in 2002, members of the SGIM Medical Resident Clinic Directors Interest Group presented a workshop about how to be an effective clinic director at our Annual Meeting. This consensus-based effort evolved into a more formal “orientation manual” for clinic directors that was shared internally with SGIM members in 2003. The orientation manual was extremely well-received, and our members asked that it be expanded and updated. This enthusiasm in part reflected the increasing complexity of the academic, regulatory, clinical, and administrative aspects of care delivery in outpatient academic medicine. There was also a strong belief that this new resource should maintain a pragmatic focus but also be more robust and evidence-based. Beginning in 2015, SGIM members Lee Lu, Ernie-Paul Barrette, Craig Noronha, Halle G. Sobel, and Daniel Tobin led the effort to realize this vision as a team of co-editors.

This book is not an “official” statement of practice standards from SGIM. However, the writing and editorial process involved extensive peer review and represents the culmination of years of work from the authors and editors in collaboration with Springer and members of SGIM. We are pleased to see this grassroots effort culminates in this outstanding product, one that will provide considerable benefit to those who lead outpatient general internal medicine clinics along with their learners and patients.

About Us: SGIM is a national medical society of over 3,000 physicians who represent the general internal medicine faculty of every medical school and major teaching hospital in the United States. SGIM members teach medical students, residents, and fellows how to care for adult patients. They also conduct research intended to foster comprehensive coordinated care of adult patients across ambulatory and hospital settings, including preventive measures and treatment services. You can learn more about our organization, our mission, and our members by visiting us online at <http://www.sgim.org/>.

# Preface

“Dream the impossible because dreams do come true.”

Elijah Wood

As I prepare writing the preface for this book, I find myself still in disbelief that I am doing it. As one of the “boat people,” escaping from an oppressive government regime and arriving to the United States, a teenager with one set of clothes and no knowledge of the language of this new country, I never dreamt of becoming a physician, a teaching professor, and a medical director and certainly not an editor of a book. The United States is truly a land of opportunities. I am proud to be an American!

After working for a few years as clinic faculty at Michael E. DeBakey Veterans Affairs (MED VA) Medical Center in Houston affiliated with Baylor College of Medicine, an opportunity came unexpectedly in the year 2003. I was offered the job of being the resident clinic director for the MED VA Internal Medicine Resident Continuity Clinic. I was hesitant at first, but after a lengthy consideration, I accepted the job. Having never been in this type of position before, I was clueless on what to do. My main focus was to make sure the internal medicine residents assigned to my clinic received a great education. Advised by one of my colleagues, I attended the Society of General Internal Medicine (SGIM) Medical Resident Clinic Director Interest Group (MRCDIG) at the national meeting. At that meeting, I met Dr. Mohan Nadkarni, the lead of this interest group. He and his colead Dr. David C. Dugdale put together the Medical Resident Clinic Director’s “Orientation Manual” in September 2003. Despite having this interest group to provide me with some guidance, I was yearning for more. I wanted a comprehensive manual on how to effectively lead my clinic.

As our healthcare system evolved, more administrative responsibilities were being added to my job (e.g., having to deal with quality indicators, the patient volume, the no-show rate, patient satisfaction, etc.). In 2006, I joined a community system for the underserved, now known as the Harris Health System (HHS) which is affiliated with Baylor College of Medicine (BCM), and in 2010, I became the medical director of a Harris Health primary care/specialty clinic working with physicians from both Baylor College of Medicine and the University of Texas Health Science Center at Houston.

As a physician, I always try my best to follow the teaching of Sir William Osler who once said, “The practice of medicine is an art, not a trade; a calling, not a business....” With all the changes in our healthcare system, many academic physicians are drifting away from Sir Osler’s teaching and are inevitably forced to deal with the business aspect of medicine such as work relative value units (wRVUs) and patient volume. In May 2011, Dr. Mohan Nadkarni passed his baton and appointed me the cochair of MRCDIG. The evolution of our healthcare system continues to impose more mandates and regulations, and having a manual to provide guidance to clinic/medical directors is essential. With this in mind, SGIM MRCDIG has updated and produced a guide on how to lead a successful academic medical practice. This book will cover many topics spanning from the clinic director’s roles, faculty recruitment, resident clinic requirements, academic clinic workflow, and education to quality improvement, Veterans Affairs clinic, and model of care delivery. We hope the content of this book will benefit leaders in an academic medical practice/institution and serve as a comprehensive guide with key clinical and administrative components on how to manage and lead a practice. The manuscript will describe an overview of the administrative challenges encountered when leading an academic medical practice; detail core clinic director roles and responsibilities; offer guidance to support, supervise, and improve faculty and trainee performance; provide strategies to effectively overcome common clinical and academic workflow challenges; and deliver a flexible resource that can be used across a variety of clinical and academic settings and models of care delivery.

I am fortunate to have found 35 national leaders and contributors with years of experience and expertise, and one of the authors, Dr. Mohan Nadkarni, is the original editor of the “clinic orientation manual.” I appreciate their enthusiasm and devoted effort in this project. In this journey, I have recruited four co-editors, Drs. Ernie-Paul Barrette, Craig F. Noronha, Halle G. Sobel, and Daniel Tobin, to assist me, and I am grateful for their partnership and contributions. Lastly, I want to thank SGIM for their support!

For leaders, some obstacles may seem impossible to overcome; however, as one of the samurai of the Saga Domain Yamamoto Tsunetomo quoted, “Nothing is impossible in this world. Firm determination, it is said, can move Heaven and Earth....”

Houston, TX, USA

Lee Bach Lu

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**Part I**  
**Clinic Director and Faculty**

# Chapter 1

## Clinic Director Roles and Expectations



Halle G. Sobel and Mark E. Pasanen

### Introduction

The ambulatory clinic is a critical learning venue for internal medicine residents to master the skills necessary to provide outstanding care in an outpatient environment. The resident clinic director oversees the ambulatory clinic and focuses on the clinical and educational missions for residents, patients, and faculty. It is the goal of the ambulatory clinic director to foster resident training that ensures residents gain the knowledge and skills necessary to practice independently in an outpatient setting and within an inter-professional team. This includes making sure residents become exposed to and skilled in varied areas of medicine, including chronic disease management, preventative care, mental healthcare, substance abuse, acute care, and population management. The clinic director must keep up with the changing and challenging landscape of medicine and be a champion of quality improvement and patient safety. This typically involves understanding the patient-centered medical home (PCMH) and National Committee for Quality Assurance (NCQA) standards that apply to primary care settings [1]. The clinic director works closely with faculty preceptors and clinic staff to create a positive experience for residents that balances education and service. In addition, she/he is a liaison to the residency program director and associated staff [2].

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## Learning Objectives

1. Understand the position requirements for a residency clinic director.
2. Recognize accountabilities for the residency clinic director, including clinical, academic, quality, and administrative missions.

## Outline

- Position Requirements
- Accountabilities
  - Clinical Mission
  - Academic Mission
  - Quality Mission
  - Administrative Mission

## Position Requirements

The resident clinic director may be a role served by individuals in different positions across institutions, but all should be certified by the American Board of Internal Medicine [2]. For example, he/she might be a core faculty member, an associate program director or the medical director of a clinic. Because of the somewhat nebulous definition of the role, the salary support often varies from institution to institution as well as the protected time allotted.

It is good practice to ensure that the resident clinic director has significant experience in resident precepting in an outpatient setting, previous participation in resident educational conferences, and strong leadership skills. In addition, it is important that this individual have excellent communication and problem-solving skills to handle challenges that invariably come up. Experience in curriculum development, resident assessment, quality improvement, panel management, and primary care research are also desirable traits. However, recruiting other faculty members to aid in tasks is often necessary, making strong organizational skills essential. The ability to handle residents, staff, and patient complaints pertinent to the resident clinic in a productive and constructive approach is another critical attribute. Continuity clinic staff should enjoy working in a resident clinic environment and understand the need to balance the educational and patient care missions. Team-based care should be modeled and taught with a patient-centered approach [3].

From an administrative standpoint, he/she will frequently meet with program administration to ensure that patient care and educational goals are aligned and that the Accreditation Council for Graduate Medical Education (ACGME) requirements are met [4]. This will often involve active engagement in the residency infrastructure, including potential participation in Program Evaluation and/or the Clinical

Competency Committee (CCC). He/she will also collaborate with faculty and the section chief to make sure the expected relative value units (RVUs) and/or educational value units (EVUs) are achieved (further discussed in chapter “Outpatient Billing and Coding”).

## **Principle Accountabilities**

### ***Clinical Mission***

During the academic cycle, the clinic director or delegate starts the year by orienting the new interns and residents to the clinic. This often includes arranging for additional electronic health record training that may not be part of the overall graduate medical education (GME) orientation. Residents meet the staff and become familiar with both the structure and the day-to-day operations of the clinic. Some programs may choose to have ambulatory intern “boot camps” to orient residents to the clinic [5]. Although residents learn the majority of the clinic processes once they start seeing patients in the clinic, they clearly benefit from a well-organized orientation. Graduating resident panels are often assigned to the new PGY-1 or PGY-2 panels during June/July of the academic year [6]. This ambulatory handoff process is a necessary function of the clinic to ensure that patients’ continuity of care is maintained through this time of transition, a key component of high-quality care [7].

As the academic year progresses, the clinic director may serve as the point person when clinic protocols develop or change to make sure all the residents can function well within an ever-evolving system. The clinic director often supervises resident activities that require an attending attestation such as anticoagulation encounters, prior authorization paperwork, and durable medical equipment forms. Given their role as a preceptor in the clinic, the director can also serve as a point person for residents, patients, faculty, and staff on feedback for issues that arise. It is common for resident clinic directors to oversee panel management activities and provide oversight to result follow-up, chart documentation, consultations, and other tasks that may fall through the cracks when the resident is out of clinic. Some clinic directors may set up a resident coverage system to manage results and messages by residents in the clinic for residents who are out of the clinic. The clinic director should recruit and orient faculty preceptors to ensure residents work with faculty who are dedicated to the educational and clinical mission of the clinic [2].

### ***Academic Mission***

Although patient care is often the focus of the resident continuity clinic experience, making sure that there is a strong educational program is critical. He/she often directs the resident outpatient conference series, which require curriculum

development, faculty recruitment, and faculty development to ensure a robust curriculum. This may include didactic experiences, small group workshops, resident-led presentations, self-study with electronic resources, quality improvement activities (discussed in chapter “Ambulatory Curriculum Design and Delivery for Internal Medicine Residents”), and panel management (discussed in chapter “Maximizing Continuity in Continuity Clinic”). The academic offerings of the clinic must undergo consistent assessment, based on ongoing evaluation and feedback by the learners.

For residency programs that offer a primary care track, the clinic director may coordinate the offerings of this track and should help support these residents with particular interest in primary care. Some institutions have a primary care program director who would then work with the clinic director to coordinate electives and academic conferences for the primary care residents. Recent studies have shown that the likelihood of entering a general internal medicine career may be linked with satisfactory experiences in the ambulatory continuity clinic [8].

### *Quality Mission*

The clinic director must follow NCQA guidelines to meet accreditation requirements for the PCMH and familiarize residents with these principles. In addition, features of ongoing primary care transformation which occurs in the patient-centered medical home must be openly discussed with residents, with the clinic director ensuring compliance within this system of care [1]. These efforts will guide curriculum development and learner assessment in the medical homes. Competencies and entrustable professional activities (EPAs) are tied to many of the clinical tasks, which can be observed and integrated into feedback [9].

With the increasing presence of accountable care organizations (ACOs) and additional available metrics, the clinic director or faculty may review clinical data such as Healthcare Effectiveness Data and Information Set (HEDIS) indicators (see chapter “Maximizing Continuity in Continuity Clinic”), patient volume, no show rate, cycle time, and patient satisfaction surveys. Additionally, it is important to participate in implementation plans to meet clinic goals based on these metrics such as diabetes and hypertension management. It is essential for the clinic director to foster a safe environment for quality initiatives and be prepared to innovate and adjust clinic experiences for their trainees in the ever-changing landscape of medicine.

### *Administrative Mission*

In addition to the clinical, academic, and quality missions, it is important to recognize the administrative expectations of the position. A basic working knowledge of accepted principles of accounting and care business management skills can be helpful. For instance, the residency clinic director must negotiate with clinic

administration to assure the clinic has a sufficient number of exam rooms, equipment, and supplies. They must also advocate for acceptable clinic staffing, including nursing and assistants along with adequate access to social work, case management, and pharmacy. He/she must effectively interface with the program director to assure timely clinic schedules and to minimize disruptions to the continuity experience. As noted above, it is also critical to negotiate appropriate support and protected administrative time for the clinic director position and to assure that productivity expectations are achievable. They must provide support to the other preceptors, including assistance in delivering feedback and remediation as well as offering mentoring for junior faculty.

## Conclusion

For a successful clinic experience, the medical resident clinic director should be an individual with a mastery of patient clinical care, residency education, and office practice management [2]. With approximately one-third of residency time spent in the ambulatory setting, a positive clinical and educational experience is a key component of residency training and can also promote interest in primary care.

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# Chapter 2

## Supervising and Supporting Faculty



Alaka Ray, Priya Radhakrishnan, and Halle G. Sobel

### Introduction

Academic faculty are integral to the clinical and medical education in an academic medical practice. A well-structured general internal medicine clinic requires the active engagement of faculty under strong leadership of the clinic director.

Academic clinics vary in size, scope, and academic affiliations. There are 400 internal medicine residency programs, with 25,828 internal medicine residents in the United States [1]. The clinics that support the categorical internal medicine programs have various academic affiliations, with the majority being hospital-based. The sponsoring institutions include universities, academic medical centers, community based hospitals, community health centers and the Veterans Affairs. Residency clinics are based in a wide variety of settings: community health centers, federally qualified health centers, and private practice settings. The geographical locations may be urban, suburban or rural and include an underserved population. According to the Society of General Internal Medicine Medical Resident Clinic Director Interest Group (MRCDIG) 2017 survey, 72% of resident clinics were in an urban setting and 18% suburban [2].

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The clinic director has many responsibilities ranging from overseeing patient care and resident education, to many administrative and financial elements of the clinic. Many academic clinics are teaching clinics with residents supervised by precepting faculty, but are also the site where these faculty see their own patients. Faculty members can range in clinical effort from part-time to full-time. Some part-time faculty may have limited clinical responsibilities with significant administrative and/or research commitments. It is the clinic director's role to support all of these diverse physicians.

## Learning Objectives

1. Learn about the nuances of supervision of clinical work, including scheduling and coverage.
2. Understand the role of the clinic director in the supervision of academic work including developing and supporting scholarship.
3. Review the role of preceptors in an academic resident clinic.

## Outline

- Academic Faculty Management
  - Outlining expectations
  - Part-time vs. full-time
  - Compensation and Productivity Goals
  - Scheduling
  - Clinic and Call Coverage
- Team Management
  - Advanced Practice Providers
- Supervision of Academic Work
- Management of Preceptor Faculty
  - Responsibilities
    - Clinical supervision
    - Clinic Operations
    - Clinical Coverage
  - Qualifications and Skills Development
  - Compensation

## Academic Faculty Management

### *Outlining Expectations*

In many institutions, the clinic director is directly responsible for the faculty who work in the clinic. In some university-based institutions, this responsibility may lie with the section chief of the division or the chair of the department. Regardless, the clinic director plays a role in interacting with the faculty on a regular basis and for being directly responsible for overseeing the faculty preceptor schedule and faculty development with regard to precepting. To ensure excellent clinical supervision and teaching, it is recommended that residents, and possibly clinic staff, evaluate the precepting faculty. The clinic director must work closely with the resident program administration to discuss any issues which arise with faculty preceptors.

It is important for the clinic director and each faculty member to be aware of the productivity metrics. The clinic structure should have a method for reviewing this information with the faculty member on a periodic basis. Productivity metrics should be available to the faculty on a monthly basis to allow faculty members to adjust their schedules to meet productivity requirements. This allows the practice to plan for adequate staffing. Goals for faculty members are dependent on many factors and organizational priorities and often include accountable care objectives, education, research priorities, and quality initiatives. Staying well informed and having input in the organizational and departmental initiatives and priorities are an important task for the clinic director and enable him/her to advocate for faculty in a methodical manner.

Ideally, during the on-boarding process for new faculty, the clinic director and the program director provide input to the chair or similar leadership regarding roles and responsibilities as to the expected number of clinical sessions and educational sessions in the teaching clinic. For full-time and regularly scheduled preceptors, it is helpful to include quality improvement responsibilities given the need for clinical champions for quality initiatives.

The clinic director should consider a formal document outlining expectations for faculty preceptors and can enlist the support of residency program leadership for this task.

### *Part-Time vs. Full-Time*

According to the MRCDIG 2017 survey [2], out of 40 respondents, over 77.5% stated that their faculty precept less than 5 sessions a week on average. In the authors' experience, academic clinics vary in the structure and faculty expectations in their clinical and educational roles [3]. The clinic director and support staff should develop a system to manage the preceptor schedules and ensure sufficient clinical coverage. It is important for the clinic director to build a culture of wellness and collaboration so that faculty members are encouraged to cover each other [4, 5].

## *Compensation and Productivity Goals*

Faculty productivity is essential for academic medical centers striving to achieve excellence and national recognition. Most academic departments measure relative value units (RVUs), and some may measure educational value units (EVUs) [6–9]. According to the MRCDIG 2017 survey, the annual productivity expectations for full-time faculty are around 4000 relative value units (RVUs) with the range 2500–5520 [2]. The clinic director is an integral part of the financial success of the institution and should oversee correct billing and coding practices by faculty preceptors. Academic internal medicine clinics are often represented as “loss centers” for hospitals and sponsoring institutions. The clinic director’s role includes understanding the operating dashboards, expenses, revenue, and productivity metrics. Most clinics have administrative leaders such as clinic managers or operational managers who are responsible for day-to-day management. However, understanding the finances of the clinical operations is particularly important for the clinic director. Several professional organizations such as Medical Group Management Association (MGMA), American Medical Group Association (AMGA), and Alliance for Academic Internal Medicine have resources for understanding dashboards and in-depth financial education [7, 10, 11].

Most academic institutions use relative value units (RVUs), billing charges, patients per session, or other encounter standards as a measure of clinical productivity. The academic and administrative work may be compensated based on an hourly rate or a percentage of salary. Some institutions use educational value units (EVUs) to measure and quantify the educational work that academic faculty perform [12]. A simple measure may be the number of visits per day for the entire clinic. Since numbers of patients fluctuate on a seasonal basis as does the availability of physicians, the clinic director is able to plan on staffing as well as outreach based on projected volumes. For example, to ensure that productivity targets are met and quality measures are addressed, some clinics develop their wellness visits during the summer or holiday months when visit volumes can be lower, leading to sustained numbers of patients.

There are an increasing number of organizations that include quality and patient satisfaction measures in the physician compensation structure. The clinic director often also plays the role of the quality director in smaller clinics and serves as the liaison between faculty and administration on the quality targets.

Review of clinical productivity during regularly scheduled staff meetings is essential to engage the physicians and the staff in the financial success of the clinic and the organization at large. Since financial education is often not a priority in residency education, it is not unusual for faculty to have gaps in their knowledge. Having sessions devoted toward improving the faculty understanding of the finances of the clinics may improve engagement and ownership of the process.

The clinic director or a delegate should work with the departmental leadership to understand dashboards such that the faculty can monitor their own performance. It

is not unusual for clinic directors to inherit “legacy” faculty who have traditionally been allotted time for administrative or educational duties that are no longer high priorities. In such cases, having a dashboard which takes into account educational and research metrics is important.

## *Scheduling*

In the authors’ experience, the creation and maintenance of schedules is a complex entity in a resident practice. The term “scheduling” encompasses appointment capacity, maximizing continuity, maintaining physician productivity, and optimizing workflows. It is advisable to meet regularly with key stakeholders including clinic staff and clinic faculty to review the schedules. Regularly reviewing appointment data with the number of arrived patients, no show rates, and late visits at faculty meetings in a transparent way ensures that all the members of the clinic are engaged. A team-based approach with data-driven quality improvement should be used [13].

There should be an established policy for how to handle patients who arrive late or miss appointments that is transparent to the faculty preceptors, clinic staff, and residents. For example, at the University of Vermont Medical Center, if a patient is 20 min late, the faculty preceptor can decide if the patient should be seen or rescheduled. It is advisable to consider how far the patient has traveled and the reason for the visit and to evaluate the psychosocial factors which may impact the ability of the patient to arrive on time. Safety net clinics often have patients who run late due to transportation issues. The Institute of Healthcare Improvement guides on primary care or the Dartmouth Institute Microsystem Academy on the Clinical Microsystem (Improving Health Care by Improving Your Microsystem) provide a good framework for improvement [14–17].

## *Clinic and Call Coverage*

Ambulatory clinics vary in the structure of their call coverage, while some may employ residents or other advanced practice providers such as nurse practitioners and others may not. In our experience, an established workflow for on-call documentation ensuring necessary post-call follow-up should be part of the clinic workflow. It can be helpful to have a telephone medicine curriculum so that residents and new faculty learn this important skill. To maintain high-value care, the clinic director plays an important role in managing utilization of services including emergency room visits and is expected to train faculty, residents, and staff in ensuring that appropriate care is given at the appropriate time [18].

## Team Management

The ambulatory clinic is an important venue for residents to learn about team-based care. Many resident clinics operate within the structure of a patient-centered medical home (further discussed in chapter “Patient Centered Medical Home”). The high-performing team is now widely recognized as an essential part of the transformation to a more patient-centered, coordinated, and effective health care delivery system. While the medical director’s role may be predominantly to manage the physicians, residents, and educational practice, the medical director plays an important role in managing the entire team, whether he/she is the sole leader or the dyad leader of the practice.

The Institute of Medicine white paper on team-based care lists the five personal values that characterize the most effective members of high-functioning teams in health care (excerpts below) [19]:

**Honesty:** Team members put a high value on effective communication within the team, including transparency about aims, decisions, uncertainty, and mistakes.

**Discipline:** Team members carry out their roles and responsibilities with discipline, even when it seems inconvenient. At the same time, team members are disciplined in seeking out and sharing new information to improve individual and team functioning, even when doing so may be uncomfortable.

**Creativity:** Team members are excited by the possibility of tackling new or emerging problems creatively.

**Humility:** Team members recognize differences in training but do not believe that one type of training or perspective is uniformly superior to the training of others. They also recognize that they are human and will make mistakes. Hence, a key value of working in a team is that fellow team members can rely on each other to help recognize and avert failures, regardless of where they are in the hierarchy.

**Curiosity:** Team members are dedicated to reflecting upon the lessons learned in the course of their daily activities and using those insights for *continuous improvement* of their own work and the functioning of the team.

In order to be successful, the team must have a shared vision and clearly articulated goals. There must be mutual trust, clear communication, and defined and measurable process and outcomes. Having strong institutional leadership that supports team-based care is an important organizational factor that impacts the success.

## *Advanced Practice Providers*

Most health centers have seen an increase in advanced nurse practitioners and physician assistants. The role of the advanced practice providers (APPs) varies in scope and structure. In many clinics, they function as members of the care team providing urgent follow-up care, population health, well visits, and help in expanding access

[20]. Many serve in the role of faculty and provide education. In our experience, having the APPs participate actively in the team, ensuring participation in academic activities such as journal clubs, and facilitating the ambulatory curriculum and in research projects will lead to active participation and career longevity. APPs cannot serve as preceptors in the resident clinic.

## **Supervision of Academic Work**

Traditionally, academic faculty, particularly core faculty, have an expectation for scholarly work and research. Over the last few decades, there have been dramatic changes in health care funding and increasing pressure of clinical productivity. This has resulted in a diminishing relationship between tenure and guaranteed salary. As a result, there have been significant changes in the scholarly output of general internal medicine faculty.

All faculty need to make a contribution to the academic culture; defining tracks and identifying core faculty is the first step toward building and sustaining a culture of scholarship. Faculty who have an interest in academic work in the clinic setting usually belong to the clinician-educator or clinician-researcher tracks. The advent of big data and the need for quality improvement due to the shift toward population-based medicine provide a rich opportunity for academic clinicians to pursue academic work with relative ease and in line with the mission of most organizations [21, 22].

For clinician educators who develop curricula and provide a majority of the teaching for the residents and students, developing a rich faculty development program with instructions on how to evaluate curricula provides professional enrichment and continues to develop the culture of inquiry and scholarship.

While the role of the clinic director is primarily to ensure that the academic clinic runs smoothly, the very nature of the academic enterprise requires commitment to promote scholarship and research. The clinic director needs to work closely with the department chair or division chief to ensure growth of the clinical and research and scholarly activity, to define academic work distinct from clinical service, and to carve out time for faculty.

## **Management of Preceptor Faculty**

As part of the responsibilities of an academic practice, clinic directors will also have supervision of faculty who precept medical residents in outpatient clinic. As such, it is useful to have a clear understanding of the resident continuity clinic preceptor role and its responsibilities.

## ***Responsibilities***

The responsibilities of the clinic preceptor can be summed up in the phrase “the primary supervisor for residents in their outpatient clinical practice.” In most cases, preceptors serve as the “attending of record” for resident patients. Thus, the preceptor is also usually associated with the patients in the resident panel for insurance and medicolegal purposes. Another key responsibility is to serve as a role model in the field of primary care and general medicine. Role modeling is particularly relevant in imparting skills in competencies such as professionalism and communication [23]. Preceptors are also called on to provide mentorship, especially for residents considering general medicine careers. However, there are several concrete components, as discussed below.

### **Clinical Supervision**

Clinical supervision can take various forms depending on the experience level of the resident and the teaching style of the preceptor. Unlike medical students, residents will obtain the history and physical exam independently. Following this, resident will usually present each patient to the outpatient preceptor. This may be done in a separate office or conference room, but in some cases, preceptors have found it effective to hear the presentation in the patient’s room, allowing the patient to hear the presentation and also facilitating clarifying questions by the preceptor. After reviewing the details of the case together, the preceptor may use various teaching methods to impart teaching points relevant to the case, including the approach to the disease, management, and follow-up. Effective teaching requires the preceptor to have multiple content frameworks and teaching strategies. In addition, teaching points must be made in a time-sensitive manner allowing the resident to adhere to the patient schedule [24, 25]. The preceptor may then choose to ask the patient additional questions or examine the patient to clarify the resident’s history and physical exam. The resident may then discuss the plan with the patient. At times, the resident may do this in the presence of the preceptor. After the visit has ended and the resident has completed the documentation, preceptors are required to review, addend, and cosign the documentation.

Often, questions arise outside a clinic session. The clinic preceptor must be available to assist residents outside of continuity clinic sessions with questions regarding patient panel management, patient laboratory testing follow-up, imaging studies, consults, paperwork, or other duties. This includes being available by email, phone or pager to respond to residents with urgent clinical questions. In most institutions, the preceptor is not the attending of record when a resident patient is admitted to the hospital. However, preceptors should encourage residents to perform continuity visits and communicate with the inpatient team. Equally important, residents should discuss any potential medical recommendations with the preceptor and inpatient attending of record for that admission.

There are relevant guidelines from the Accreditation Council for Graduate Medical Education (ACGME) regarding the preceptor-to-resident ratio in clinic which state that clinics “Must maintain a ratio of residents or other learners to fac-

ulty preceptor not to exceed 4:1.” In addition, “Faculty must not have other patient care duties while supervising more than two residents or other learners. Other faculty responsibilities must not detract from the supervision and teaching of residents” [26]. This ratio is currently utilized as part of the CMS Primary Care Exception Rule which allows preceptors to bill and supervise the entire visit from outside the patient’s room if the patient is covered by Medicare, the resident has more than 6 months of experience, the 4:1 ratio stated above is maintained, and the preceptor is easily available for any required supervision [27]. As a result, this teaching ratio has been utilized in many continuity clinics, even if the exception rule is not being utilized for billing. In clinics where the resident patients have a broader range of insurers, the exception rule can be difficult to implement since the preceptor’s approach to each patient should theoretically be payer-blind. Commercial payers usually require that each patient be seen by an attending physician—a rule that can be challenging in clinics with fewer teaching faculty. In addition, the literature suggests that the six-month threshold is arbitrary and should be supplemented by an ACGME Milestones-based assessment of each individual resident’s readiness to practice under indirect supervision [28, 29]. Thus, it should be possible to utilize the exception rule while balancing patient safety and resident autonomy.

## **Clinic Operations**

Preceptors must assist and educate residents in effective clinical operations and also assist with patient triage. Preceptors have an important role in orienting residents to clinic structure and workflow, as well as use of the electronic care systems and billing. The ACGME mandates the presence of “Outpatient systems to prevent residents from performing routine clerical functions, such as scheduling tests and appointments, and retrieving records and letters” [26]. Preceptors are ideally placed to enforce this by serving as an outpatient ambassador, as well as by introducing and orienting residents to various clinic supports (i.e., nurse practitioners, nurses, medical assistants, administrative staff, nutritionist, case managers). When practice-level discussions occur regarding workflow and clinical support, preceptors can serve as a strong advocate for resident physicians to ensure there is equity in the support that is provided. Often, since residents are usually the most “part-time” providers, workflows need to be adapted to be effective for residents and their patients. Preceptors can provide input on this, and ideally residents in the clinic should also be asked for input.

## **Clinical Coverage**

Preceptors are required to assist with resident clinical activities that require attending sign-off, e.g., controlled substance refills, anticoagulation oversight, forms related to outpatient services, and other forms. In some clinics, preceptors also provide coverage for assigned residents’ patient panel when a resident is unavailable. In larger programs, this coverage can be offset by any available resident coverage system; however, preceptors should still remain available to provide clinical supervision as needed for the resident who is covering. The literature suggests that

residents are less able to attend to “between visit” work during inpatient rotations rather than electives [30]. Episodic coverage for these “between visit” tasks is often provided by preceptors.

### *Qualifications and Skills Development*

The ACGME states: “The physician faculty must have current certification in the specialty by the American Board of Internal Medicine, or possess qualifications judged acceptable to the Review Committee. At each participating site, there must be a sufficient number of Internal Medicine faculty with documented qualifications to instruct and supervise all residents at that location. Faculty must devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities and to administer and maintain an educational environment conducive to educating residents in each of the ACGME competency areas” [26]. For internal medicine residency programs, outpatient clinic faculty are usually board-certified in internal medicine except in rare situations. Faculty should be primary care physicians in good standing at an approved primary care site affiliated with the residency program. Ideally, the primary care site will share the same electronic health record as the main residency site; however, this is not essential. Precepting faculty should have a deep interest in medical education and mentorship of residents. If the residency program or hospital division holds faculty development sessions, preceptors should be encouraged or expected to attend. Attendance to a reasonable number of faculty development events per year should be prioritized and facilitated by the clinic director.

Preceptors should have the opportunity to review their evaluations from residents and discuss their engagement in teaching with a residency program director or associate program director on an annual basis. Generally, a successful preceptor will have a demonstrated interest and experience in education, reflected in written evaluations by trainees.

Finally, it should be noted that a genuine alliance between precepting faculty and practice leadership promotes a stronger educational experience for learners. Gupta et al. discussed the concept of “Clinic First” and described six actions that can improve the educational experience of a resident continuity clinic. Four of the six actions—developing a small core of clinic faculty, creating operationally excellent clinics, building stable clinic teams, engaging residents in practice transformation—are in the bailiwick of the clinic medical director [31].

### *Compensation*

Preceptor payment occurs via a number of different models across the country. Many programs compensate preceptors based on the revenue from resident clinic sessions they supervised. In other cases, revenue from resident clinic sessions is directed to the clinic site, and preceptors are paid a fixed stipend.

## Conclusion

The clinic director has a challenging role. In order to fulfill the responsibilities and expectations, it is important for a clinic director to have leadership and management skills, an understanding of financial and operational metrics, and a passion for mentorship and education. A robust organizational structure and clearly delineated expectations for all clinic staff can greatly augment the effectiveness of the clinic director.

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# Chapter 3

## Faculty Recruitment and Retention



Mohan Nadkarni and Ira Helenius

### Introduction

The ACGME requires that internal medicine residents have “clinical experiences in efficient, effective ambulatory and inpatient settings with at least one-third of residency training occurring in ambulatory settings” [1]. Additionally, the *Next Accreditation System* includes increased ambulatory training requirements as well as the need for competency-based assessment. Shifts in care delivery models emphasize efficient patient-centered ambulatory programs which require a large ambulatory faculty workforce capable of both providing and teaching high-value medical care. However, recruiting, training, and retaining clinical educators have become increasingly difficult [2]. Data from the 2010 Association of Program Directors in Internal Medicine (APDIM) survey demonstrates that greater than 40% of programs reported difficulty recruiting core ambulatory faculty as well as training them in competency-based assessment [3].

With increasing workload and productivity demands, stress levels can be high in ambulatory settings with increasing rates of faculty burnout reported. Volume-based outcome metrics and compensation plans can place teaching faculty at risk. Fortunately, educational activities and roles can offset these challenges if adequate protected teaching time, salary support, job security, faculty development, and academic advancement

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can be provided. A recent Alliance for Academic Internal Medicine (AAIM)/Society of General Internal Medicine (SGIM) position paper on faculty recruitment, retention, and development outlined factors to consider in order to overcome barriers such as productivity demands, volume metrics, and workplace inefficiencies and promote excellence in faculty engaged in teaching in ambulatory clinics [4].

## Learning Objectives

1. Recognize the forces affecting faculty recruitment and retention.
2. Understand the interventions to enhance faculty recruitment and retention.

## Outline

- Value Teaching
- Career Development: Promotions and Tenure
- Faculty Development Program
- Mentoring
- Innovative Clinical Learning Models
- Optimize Clinical Work Environments
- Develop Faculty Interests
- Nonfinancial Incentives
- Mission Based Care

## Value Teaching as an Institution

One key element in demonstrating institutions placing value on ambulatory teaching is to provide adequate time and compensation for those providing this education. Studies note that teaching during a clinical session adds significant time and complexity to the workday. One study with medical students estimated that 30–50 min extra time was spent with learners embedded in an ambulatory clinical session [5]. Additionally, relative value unit (RVU)-based productivity may be compromised during teaching sessions. Clinical educators should not be “penalized” for teaching and should have protected time to teach. Systems which provide “teaching RVUs” to supplement clinical RVUs may be useful in offsetting decreased clinical productivity [6, 7]. Similarly, ramping down the number of patients scheduled per session can enhance teaching performance and highlight the value placed on such educational activity while decompressing clinical pressures. Another mechanism utilized is “mission-based funding,” with specific salary support provided for those faculty regularly precepting learners thus recognizing the inherent clinical productivity losses necessitated by time spent actively teaching and mentoring trainees. Indeed, paying faculty to teach is

positively correlated with better teacher evaluations [7, 8]. Freeing up faculty time by the use of scribes or advanced practice providers is another mechanism to protect faculty time while demonstrating institutional commitment to support clinical teaching.

## **Career Development: Promotion and Tenure**

Academic faculty with large clinical demands may still face traditional pressures to obtain research grants and publish formal peer-reviewed articles, which may not be feasible for clinicians focused on clinical care of patients and direct teaching of trainees.

Promotion criteria must value teachers for advancing the educational mission, including recognition of curriculum development, teaching portfolios, mentoring activities, educational presentations, evaluations by learners, and awards. Teaching excellence should be measured and rewarded [9].

Institutional recognition via teaching awards is a simple and cost-effective way to demonstrate institutional commitment to the promotion of teaching excellence but must be coupled with appointment and promotion criteria that recognize success in education. Furthermore, career paths focused on education, as in the model of a group of “master educators” who receive salary support and resources for education, may encourage faculty to pursue education as the main focus of their academic career [10].

## **Faculty Development**

Formal faculty development has been widely recognized as vital to the success of clinician educators. Often these clinician educators are more confident in their clinical skills than their educational efficacy. The implementation of milestones and competency-based medical education requires new skillsets to mirror changes in the educational paradigm [11]. Importantly, faculty development programs require sufficient time for meaningful engagement. This may be accomplished via workshops that build on both clinical and practical educational skills, such as those in quality improvement or “high-value care” [12]. Regardless of the content and venue, departmental leadership must demonstrate and embrace protected time for specific faculty development.

## **Faculty Mentoring**

In addition to faculty development workshops, faculty mentorship must be highly developed in order to successfully retain talented faculty. An APDIM position paper on educational redesign emphasized the need for qualified clinician educators to

lead faculty development and provide mentorship to junior teaching faculty [13]. Components of peer observation and “learning communities” with an emphasis on faculty collaboration appear to be most successful in supporting clinician educators in their work. The Association of American Medical Colleges (AAMC) has catalogued 16 successful mentoring programs which can provide a basis for institutions to develop robust programs. Components of successful programs included mentor engagement, presence of a steering committee, mentor-mentee relationships, formal curricula, regularly scheduled mentoring activities, and dedicated program funding [14, 15].

## **Innovative Clinical Learning Models**

Recruiting and retaining faculty into sites with innovative clinical learning models which can enhance clinical care and education is an attractive mechanism for attracting committed institutional leaders in clinical education. Examples such as clinics utilizing long-block curriculum or the increasingly popular  $x + y$  block system can enhance continuity and resident satisfaction while decreasing the stress of simultaneous clinic and inpatient duties. Faculty and trainees have recognized that decreased stress in the clinic can lead to improved educational outcomes and less burnout [16]. The presence of learning collaboratives has also demonstrated benefits in faculty engagement to enhance retention [17].

## **Optimize Clinical Work Environments**

Many resident-faculty continuity clinics are under-resourced and may not operate efficiently placing significant administrative burden on clinician educator faculty [18]. This can lead to decreased satisfaction and burnout detracting from faculty retention. Focusing specifically on the “quadruple aim” enhancing patient experience, improving population health, and reducing costs but including work life balance improvement can be vital to retention [19]. Advocating for increased administrative and clinical support while involving faculty in quality and efficiency improvement programs may be helpful. Working in a culture which rewards collaborative cooperation among faculty (flexible coverage, peer support) creates a positive environment which can go a long way toward offsetting any financial disincentives that may be inherent in the system. In an analysis of high-functioning primary care practices, the tenets of “Joy in Practice” indicated that optimization of clinical practice can be achieved via focusing on team-based care with distribution of clinical and clerical duties among team members, co-location of team members, nonphysician order entry, and enhanced team communication [20].

## **Develop Faculty Interests**

Faculty members may have specific niche interests that lend themselves well to development of a specialized subclinic within the regular continuity clinic setting. Examples such as women's health, sports medicine, integrated psychiatric care, high-risk patient, or procedures clinics have been reported. Faculty members with a passion in such areas can often spur educational interest among trainees and may lead to enhanced faculty satisfaction and retention.

## **Nonfinancial Incentives**

Direct funding for clinician educators as mentioned is important in demonstrating institutional commitment to education. However, other mechanisms of incentivization of the faculty can be employed. Simple interventions such as providing an academic title can assist with career advancement. Providing teaching faculty with extra exam rooms or dedicated parking if possible and other simple recognitions can go a long way to demonstrate appreciation for the work provided. Ambulatory teaching awards, letters of recognition provided to departmental leadership, and certificates of appreciation are all inexpensive but palpable interventions which may enhance faculty satisfaction.

## **Mission-Based Care**

One of the strongest motivators for many faculty is the sense of participation in a valued mission shared by the faculty as a whole. Whether that be pride in providing the best teaching experience for trainees available, or as in many resident continuity clinics, dedicating the practice to care of vulnerable populations often shunned by other parts of the institution can create an atmosphere of collaboration and support that more than offsets the challenges of practicing in often under-resourced environments. Leaders who identify these core missions and prominently highlight the importance of the mission may often be rewarded by faculty teams who dedicate themselves to providing the highest level of care and education.

## **Conclusion**

Ambulatory education in the continuity clinic setting is a vital part of medical training. Recruitment and retention of excellent clinician educators can be increasingly difficult. However, focusing on valuing clinician educators as demonstrated

by protected teaching time, warding off clinical burnout, educational parity with other academic endeavors, rigorous faculty development, and promotion and tenure advancement, as well as nonfinancial incentives and mission-focused goals, can enhance leaders' ability to recruit and retain the highest quality clinician educators.

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# Chapter 4

## Outpatient Billing and Coding



Lee B. Lu and Scott V. Joy

### Introduction

Knowing the complexities of outpatient billing is critical to optimizing financial success in a general internal medicine clinic. With a current focus in academic medical centers on visit volume and clinical productivity as measured in work relative value units (wRVUs), faculty and clinic directors must understand the visit types and preventive services that are provided by the general internist, understand the documentation requirements for each of these services, and understand how to appropriately code and bill for the services provided. This chapter will highlight the history of physician reimbursement, basics of outpatient billing and coding for evaluation and management visits, Transition of Care visits, and preventive visits and services and illustrate examples on how to maximize wRVUs and revenue in a general internal medicine practice.

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## Learning Objectives

1. Learn the historical background of billing and coding guidelines.
2. Review the basic requirements of billing and coding.
3. Identify ways to maximize RVUs in a general internal medicine practice.

## Outline

- History of physician reimbursement for medical services
- The basics of billing and coding
- New/Established patient billing
- Preventive Visits
- Screening Visits
- Medicare Services
  - Annual wellness visits
  - Transition of care visits
  - Home health care oversight
  - Coding and billing for counseling services
- Modifiers
- Relative value units
- Maximizing revenue

## History of Physician Reimbursement for Medical Services

The United States Congress created Medicare in 1965. At this time, the Congress did not want physicians to have a disincentive to treat Medicare patients, and thus, Medicare allowed for locally determined “reasonable” charges. In an attempt to begin standardizing medical services, the American Medical Association (AMA) in 1965 created Current Procedural Terminology (CPT) to codify every medical service and procedure, but did not create value for each code. Without any financial checks in the system, fees rose, and this prompted action needed to be taken. In 1976, the Congress implemented the Medicare Economic Index which limited fee increases by tying them to inflation rates, and in 1986, the Congress froze fee increases, due to budgetary constraints. This led to physicians, physician advocacy groups, and government to engage in endless sparring to address stakeholders’ concerns that continue today. Some highlights of the historical timeline and interventions relevant to general internal medicine billing and coding are as follows [1]:

- 1986:** Physician Payment Review Commission provides independent advice regarding Medicare spending and continues today as MedPAC (1997).
- 1989–1992:** Resource-based relative value scale (RBRVS) was created as a result of the Omnibus Budget Reconciliation Act with the intent to streamline physician fee scales and reduce disparities in reimbursements. RBRVS assigns relative value units (RVUs) to various aspects of physician activities and forms the basis for determining Medicare reimbursements.
- 1991–1992:** The Relative Value Scale Update Committee (RUC) is an AMA-created panel to advise the Congress on “refining” RBRVS. This group remains controversial as the majority of voting members represent subspecialty services and not primary care. This has the potential for bias to financially favor procedural services over cognitive services. This bias is a detriment to general internal medicine.
- 1997:** Sustainable Growth Rate (SGR) makes up part of the formula that CMS used to calculate Medicare reimbursement. It was tied to the gross domestic product (GDP) and must maintain budget neutrality. When expenditures exceeded targets, the Center for Medicare Services (CMS) enacts payment cuts, which can only be altered by an act of the Congress. This led to an ongoing series of temporary financial patches, commonly referred to as the “doc fix” to reduce the political tempest and fallout that would result from these cuts by reducing physician payments for Medicare services.
- 2010:** The Patient Protection and Affordable Care Act (PPACA, ACA, or ObamaCare) signed by President Obama established the Annual Wellness Visit and Center for Medicare and Medicaid Innovation (CMMI) to evaluate new payment models for physicians, including Accountable Care Organizations (ACO) and Comprehensive Primary Care (CPC), providing coverage for services and testing meeting USPSTF grades A and B recommendations.
- 2015:** MACRA.

The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) ended the Sustainable Growth Rate (SGR) formula, which threatened clinicians participating in Medicare with potential payment cliffs for 13 years [2]. MACRA creates the Quality Payment Program, whose purpose is to provide new tools and resources to give Medicare patients the best possible care.

- Physicians and practices can choose how to participate in the Quality Payment Program, based on practice size, specialty, location, or patient population, and there are two tracks a physician can choose to participate in, which are advanced alternative payment models (APMs) or
- the Merit-based Incentive Payment System (MIPS).

For practices deciding to participate in an Advanced APM, through Medicare Part B, they may earn an incentive payment for participating in an innovative payment model. Practices deciding to participate in traditional Medicare Part B will participate in MIPS earning a performance-based payment adjustment.

The first performance period opens January 1, 2017, and closes December 31, 2017. During 2017, physicians or practices must record quality data and how technology was used to support the practice. Practices in an Advanced APM will continue to provide care during the year through that model.

To potentially earn a positive payment adjustment under MIPS, data about the care provided and how the practice used technology in 2017 needs to be submitted to CMS as part of MIPS by March 31, 2018, the deadline.

To earn the 5% incentive payment for participating in an Advanced APM, quality data is submitted through your Advanced APM.

A positive MIPS payment adjustment will begin on January 1, 2019, if you submit 2017 data by March 31, 2018. For 2017, Advanced APM practices may earn a 5% incentive payment in 2019.

The reimbursement landscape for primary care continues to evolve rapidly. The 2017 Physician Fee Schedule will allow for reimbursement of evaluation and management of cognitive impairment, telehealth services, and collaborative behavioral health services in a primary care setting. The Society of General Internal Medicine Health Policy Committee is an excellent way to keep apprised of the changing reimbursement landscape.

## The Basics of Billing and Coding

For billing and coding, it is critical to review the basics which involve documentation to determine the level of service (LOS). There are two CMS documentation guidelines, the Evaluation and Management (E/M) 1995 and 1997 versions. In this section, we will first review both versions, highlight the differences, revisit the definition of new and established patients, and then give examples of cases for determination of LOS. For documentation, there are three main categories to determine the level of service:

- History
- Physical examination
- Assessment and plan (medical decision making)

### 1995 E/M Guidelines [3]

#### History

Chief complaint	Required	
<b>History of present illness (HPI)</b>	-Location	-Timing
	-Quality	-Context
<b>Review of systems (ROS)</b>	-Severity	-Modifying factors
	-Duration	-Associated signs and symptoms
	-Constitutional	-Musculoskeletal
	-Eyes	-Integumentary
	-Ear, nose, mouth, throat	-Neurological
	-Cardiovascular	-Psychiatric
	-Respiratory	-Endocrine
<b>Past, family, and social history (PFSH)</b>	-Gastrointestinal	-Hematological/lymphatic
	-Genitourinary	-Allergic/immunologic
	<b>Past history</b> —past medical condition, surgeries, injuries	
	<b>Family history</b> —medical diseases of family members	
	<b>Social history</b> —employment, tobacco use, alcohol use, illegal drug abuse	

**Tips to collect or document review of systems (ROS):**

May use a paper form for patients to check.

Nurses can fill out the ROS.

Providers may document pertinent positive and negative systems individually and state the rest of all other systems is negative.

Providers may review the complete ROS from prior visits and make a statement indicating the changes of status, if any. “Complete ROS was performed on specified date and reviewed with the patient. There is no new changes.”

**Physical Examination**

Body areas	Organ systems
Head including face and neck	Constitutional
Chest including breasts and axillae	Eyes, ears, nose
Abdomen	Mouth and throat
Genitalia	Cardiovascular
Groin	Respiratory
Buttock	Gastrointestinal
Back including spine	Musculoskeletal
Each extremity	Skin
	Neurologic
	Psychiatric

**Problem focused**—examination only of the affected body area or organ system

**Expanded problem focused vs. detailed examination**

Expanded (four systems with limited components)	Detailed (four systems with four components)
Eyes—anicteric	Eyes—no discharge, anicteric, PERRLA
Heart—regular rate and rhythm	Heart—S1 and S2, RRR, no murmur, no rubs
Lungs—clear to auscultation	Lungs—clear to auscultation, no wheezes, rales
Abdomen—soft	Abdomen—BS present, soft, non-distended, no tenderness
<b>LOS: 99213 (established) or 99203 (new)</b>	<b>LOS: 99214 (established) or 99204 (new)</b>

**Comprehensive**—a general multisystem examination

**Medical Decision Making (MDM)**

Medical decision making is based on three components to determine the complexity of the four levels:

The number of diagnoses and management options

The amount of complexity of medical records, diagnostic tests, and information obtained

The risk of significant complications, morbidity, and/or mortality

There are four levels of MDM:

- Straightforward
- Low complexity
- Moderate complexity
- High complexity

(A) Number of diagnoses and management options

- Self-limited or minor—1 point
- Established problem, stable—1 point
- Established problem, worsening—2 points
- New problem, no additional work-up—3 points
- New problem, additional work-up—4 points

Total points:

- 1 point—minimal
- 2 points—limited
- 3 points—multiple
- 4 points—extensive

(B) Amount and complexity of data

- Review and/or order lab test—1 point
- Review and/or order radiology—1 point
- Review and/or order medical tests such as pulmonary function test, echocardiogram, etc.—1 point
- Discuss test results with performing physician—1 point
- Obtain old records and/or history from other sources than patient—1 point
- Review and summarize records—2 points
- Independent interpretation of imagings, tracings, etc.—2 points

Total points:

- 1 point—minimal
- 2 points—limited
- 3 points—moderate
- 4 points—extensive

(C) The risks of significant complications, morbidity, and /or mortality based on 1995 guidelines

**Table of risk**

<i>Level of risk</i>	Presenting problem(s)	Diagnostic procedure(s) ordered	Management options selected
<i>Minimal</i>	One self-limited or minor problem, e.g., cold, insect bite, tinea corporis	Laboratory tests requiring venipuncture chest X-rays EKG/EEG Urinalysis Ultrasound, e.g., echocardiography KOH prep	Rest Gargles Elastic bandages Superficial dressings

<i>Level of risk</i>	Presenting problem(s)	Diagnostic procedure(s) ordered	Management options selected
<i>Low</i>	Two or more self-limited or minor problems One stable chronic illness, e.g., well-controlled hypertension, non-insulin-dependent diabetes, cataract, BPH Acute uncomplicated illness or injury, e.g., cystitis, allergic rhinitis, simple sprain	Physiologic tests not under stress, e.g., pulmonary function tests Non-cardiovascular imaging studies with contrast, e.g., barium enema Superficial needle biopsies Clinical laboratory tests requiring arterial puncture Skin biopsies	Over-the-counter drugs Minor surgery with no identified risk factors Physical therapy Occupational therapy IV fluids without additives
<i>Moderate</i>	One or more chronic illnesses with mild exacerbation, progression, or side effects of treatment Two or more stable chronic illnesses Undiagnosed new problem with uncertain prognosis, e.g., lump in breast Acute illness with systemic symptoms, e.g., pyelonephritis, pneumonitis, colitis Acute complicated injury, e.g., head injury with brief loss of consciousness	Physiologic tests under stress, e.g., cardiac stress test, fetal contraction stress test Diagnostic endoscopies with no identified risk factors Deep needle or incisional biopsy Cardiovascular imaging studies with contrast and no identified risk factors, e.g., arteriogram, cardiac catheterization Obtain fluid from body cavity, e.g., lumbar puncture, thoracentesis, culdocentesis	Minor surgery with identified risk factors Elective major surgery (open, percutaneous, or endoscopic) with no identified risk factors Prescription drug management Therapeutic nuclear medicine IV fluids with additives Closed treatment of fracture or dislocation without manipulation
<i>High</i>	One or more chronic illnesses with severe exacerbation, progression, or side effects of treatment Acute or chronic illnesses or injuries that pose a threat to life or bodily function, e.g., multiple trauma, acute MI, pulmonary embolus, severe respiratory distress, progressive severe rheumatoid arthritis, psychiatric illness with potential threat to self or others, peritonitis, acute renal failure An abrupt change in neurologic status, e.g., seizure, TIA, weakness, sensory loss	Cardiovascular imaging studies with contrast with identified risk factors Cardiac electrophysiological tests Diagnostic endoscopies with identified risk factors Discography	Elective major surgery (open, percutaneous, or endoscopic) with identified risk factors Emergency major surgery (open, percutaneous, or endoscopic) Parenteral controlled substances Drug therapy requiring intensive monitoring for toxicity Decision not to resuscitate or to de-escalate care because of poor prognosis

### Medical decision-making qualification—must meet two of the three elements

No. of diagnoses	Complexity of data	Risk	Type of decision making
≤1 minimal	≤1 minimal	Minimal	Straightforward
2 limited	2 limited	Low	Low complexity
3 multiple	3 moderate	Moderate	Moderate complexity
≥4 extensive	≥4 extensive	High	High complexity

### 1997 E/M Guidelines [4]

The main two differences between 1995 and 1997 E/M guidelines are in **history of present illness and physical examination**.

Different from 1995 guidelines, for extended HPI, the 1997 guideline may contain the status of at least three chronic or inactive conditions instead of requiring four documented elements of a chief complaint. This is benefitting primary care physicians due to a large of number of patients coming in for chronic disease management.

However, 1997 physical exam is cumbersome for primary care physicians because it needs to be very specific and must meet required number of bullets and number of systems. It is more useful for specialty physicians because they can do a focused exam based on their specialty.

The 1997 physical exam can be general multisystem: constitutional; eyes; ears, nose, mouth, and throat; neck; respiratory; cardiovascular; chest (breasts); gastrointestinal (abdomen); GU; lymphatic; musculoskeletal; skin; neurologic; and psychiatric. It requires meeting the required number of systems and bullet points.

An example of a single system Cardiovascular Examination of 1997 E/M guideline

Cardiovascular examination	
System/body area	Elements of examination
<b>Constitutional</b>	<b>Measurement of any three of the following seven vital signs: (1) sitting or standing blood pressure, (2) supine blood pressure, (3) pulse rate and regularity, (4) respiration, (5) temperature, (6) height, (7) weight (may be measured and recorded by ancillary staff)</b> <b>General appearance of patient (e.g., development, nutrition, body habitus, deformities, attention to grooming)</b>
Head and face	
Eyes	Inspection of conjunctivae and lids (e.g., xanthelasma)
Ears, nose, mouth, and throat	Inspection of teeth, gums, and palate Inspection of oral mucosa with notation of presence of pallor or cyanosis
Neck	Examination of jugular veins (e.g., distension; a, v, or cannon a waves) Examination of thyroid (e.g., breath sounds, adventitious sounds, rubs)
<b>Respiratory</b>	<b>Assessment of respiratory effort (eg, intercostal retractions, use of accessory muscles, diaphragmatic movement)</b> <b>Auscultation of lungs (eg, breath sounds, adventitious sounds, rubs)</b>

Cardiovascular examination	
System/body area	Elements of examination
<b>Cardiovascular</b>	<p><b>Palpation of heart (e.g., location, size, and forcefulness of the point of maximal impact; thrills; lifts; palpable S3 or S4)</b></p> <p><b>Auscultation of heart including sounds, abnormal sounds, and murmurs</b></p> <p><b>Measurement of blood pressure in two or more extremities when indicated (e.g., aortic dissection, coarctation)</b></p> <p><b>Examination of</b></p> <ul style="list-style-type: none"> <li>• <b>Carotid arteries (e.g., waveform, pulse amplitude, bruits, apical-carotid delay)</b></li> <li>• <b>Abdominal aorta (e.g., size, bruits)</b></li> <li>• <b>Femoral arteries (e.g., pulse amplitude, bruits)</b></li> <li>• <b>Pedal pulses (e.g., pulse amplitude)</b></li> <li>• <b>Extremities for peripheral edema and/or varicosities</b></li> </ul>
Chest (breasts)	
<b>Gastrointestinal (abdomen)</b>	<p><b>Examination of abdomen with notation of presence of masses or tenderness</b></p> <p><b>Examination of liver and spleen</b></p> <p><b>Obtain stool sample for occult blood from patients who are being considered for thrombolytic or anticoagulant therapy</b></p>
Genitourinary (abdomen)	
<i>Lymphatic</i>	
Musculoskeletal	<p>Examination of the back with notation of kyphosis or scoliosis</p> <p>Examination of gait with notation of ability to undergo exercise testing and/or participation in exercise programs</p> <p>Assessment of muscle strength and tone (e.g., flaccid, cog wheel, spastic) with notation of any atrophy and abnormal movements</p>
Extremities	<p>Inspection and palpation of digits and nails (e.g., clubbing cyanosis, inflammation, petechiae, ischemia, infections, Osler's nodes)</p>
Skin	<p>Inspection and/or palpation of skin and subcutaneous tissue (e.g., stasis dermatitis, ulcers, scars, xanthomas)</p>
<b>Neurological/psychiatric</b>	<p><b>Brief assessment of mental status including:</b></p> <p><b>Orientation to time, place, and person</b></p> <p><b>Mood and affect (e.g., depression, anxiety, agitation)</b></p>

## Content and Documentation Requirements

Level of exam	Perform and document
Problem focused	<b>One to five</b> elements identified by a bullet
Expanded problem focused	<b>At least six</b> elements identified by a bullet
Detailed	<b>At least 12</b> elements identified by a bullet
Comprehensive	Perform <b>all</b> elements identified by a bullet; document every element in each bold system and at least one element in other system

**As shown here, the physical exam for 1997 E/M guidelines requiring different number of elements and bullet points is quite cumbersome for primary care physicians and is more suitable for specialists.**

Prior to September 10, 2013, physicians must use 1995 or 1997 E/M guidelines [5]. As of September 10, 2013, physicians were allowed to use the extended history of present illness along with other elements from the 1995 guidelines for documentation and combine with 1997 guidelines. Since 1997 guidelines allow three or more chronic conditions in HPI, it is useful for primary care physicians to document follow-up visits for patients with chronic diseases when they do not present with a particular complaint. The physical exam component of the 1995 guideline is simpler for documentation and does not require meeting bullet points.

In summary, for patients who are being followed for chronic medical conditions without a chief complaint, use extended HPI documentation in 1997 guidelines.

## **New/Established Patient Billing [6]**

**New patient definition**—by Current Procedural Terminology (CPT) definition—a new patient is defined as “one who has not received any professional services from the physician, or another physician of the same specialty who belongs to the same group practice, within the past three years.”

**New patient codes (99201–99205)**—require all **three** key components (history, physical exam, and medical decision making).

**Established patient definition**—a patient who has received care from the physician or another physician of the same specialty who belongs to the same group practice within the past 3 years.

**Established patient codes (99212–99215)**—only two of three components (history, physical exam, and medical decision making) are required.

**Table for new patient office visits**

<b>New</b> Requires three out of three key components	<b>99201</b>	<b>99202</b>	<b>99203</b>	<b>99204</b>	<b>99205</b>
<b>History</b> <b>CC:</b> <b>HPI:</b> <b>ROS:</b> <b>PFSH:</b>	Problem focus required 1	Expanded problem focus required 1 1	Detailed required 4 2 1	Comprehensive required 4 10 3	Comprehensive required 4 10 3
<b>Examination (body areas or organ systems)</b>	1	2–7 expanded	2–7 detailed	8	8
<b>Medical decision making</b>	Straight-forward	Straight-forward	Low complexity	Moderate complexity	High complexity
<b>Time</b>	10 min	20 min	30 min	40 min	60 min

Adapted and revised from Baylor College of Medicine billing pocket card

**Table for established office visits**

<b>Established</b> Requires two out of three key components	<b>99212</b>	<b>99213</b>	<b>99214</b>	<b>99215</b>
<b>History</b> <b>CC:</b> <b>HPI:</b> <b>ROS:</b> <b>PFSH:</b>	Problem focus required 1	Expanded problem focus required 1 1	Detailed required 4 2 1	Comprehensive required 4 10 3
<b>Examination (body areas or organ systems)</b>	1	2–7 expanded	2–7 detailed	8
<b>Medical decision making</b>	Straightforward	Low complexity	Moderate complexity	High complexity
<b>Time</b>	10 min	15 min	25 min	40 min

Adapted and revised from a Baylor College of Medicine billing pocket card

## Case Examples

### Case #1

CC: cough

HPI: A 19-year-old male is here with a two-day history of productive cough with yellowish sputum. Denies fever, chills, sore throat.

ROS: denies SOB, chest pain.

Social history: denies smoking.

Exam:

Vital signs: temp 99.9 °F, BP 120/70, HR 80, RR 12.

Oropharynx is clear, no exudate.

Neck: no LAD.

Heart: RRR, S1, and S2; no murmur, no rubs.

Lungs: clear to auscultation, no wheezes, no rales, or crackles.

A/P:

1. Acute upper respiratory infection—self-limited, minor, most likely viral. Rest and keep hydration.

What is the level of service for a new patient?

CPT Requires three out of three key components	99201	99202	99203	99204	99205
<b>History</b>	Problem focus required	Expanded problem focus required	Detailed required	Comprehensive required	Comprehensive required
<b>CC:</b>	1	1	4	4	4
<b>HPI:</b>	1	1	2	10	10
<b>ROS:</b>		1	1	3	3
<b>PFSH:</b>		1	✓		
<b>Examination</b>	1	2–7 expanded	2–7 detailed ✓	8	8

### Medical Decision Making

**Number of diagnoses**—self-limited or minor—1 point

**Complexity of data**—no test or lab is ordered—0 point

**Risk level**—minimal

Dx	Data	Risk	Type
≤1 pts	≤1 pts	Minimal	Straightforward (SF)

CPT Requires three out of three key components	99201	99202	99203	99204	99205
<b>History</b> <b>CC:</b> <b>HPI:</b> <b>ROS:</b> <b>PFSH:</b>	Problem focus Required 1	Expanded problem focus required 1 1 1	Detailed required 4 2 1 ✓	Comprehensive required 4 10 3	Comprehensive required 4 10 3
<b>Examination</b>	1	2-7 expanded	2-7 detailed ✓	8	8
<b>Medical decision making</b>	Straight- forward	Straight- forward ✓	Low complexity	Moderate complexity	High complexity
<b>Time</b>	10 min	20 min	30 min	40 min	60 min

With a new patient visit, the patient must meet all three key components to code at the higher level.

**Answer: 99202**

**Case #2**

CC: high blood sugar.

HPI: A 56-year-old female with history of HTN is here with complaint of high blood sugar. She was recently seen in emergency department (ED) for thirst and frequent urination. She was told that she needs to see her primary care physician because her blood sugar was 240 mg/dL. She still has thirst and urinates a lot. She denies blurry vision and numbness in feet. She was last seen 2 and half years ago and has since lost follow-up.

ROS: denies chest pain and SOB.

Medications: hydrochlorothiazide 25 mg daily.

Family history: mother has DM.

Physical exam:

Vital signs: temp 98.7 °F, HR 90, RR 14, BP 135/80, body mass index (BMI) 38.

In no acute distress.

Moist buccal mucosa.

Heart: RRR, S1, and S2.

Lung: clear to auscultation.

Abdomen: soft, non-tender.

A/P:

1. Polyuria, polydipsia—new problem, needs further work-up.  
With reported BS 240 mg/dL from ED, needs record. Point of care (POC) of blood sugar in clinic today. Suspects new onset of DM, check HgbA1c. Counseled on American Diabetic Association (ADA) diet. Will need to bring patient back after test result to start treatment.
2. Elevated BMI—chronic condition, goal not met.  
Counseled for 10 min on diet and exercise to lose weight.
3. HTN—chronic condition, goal met. Controlled with medication.

What is the level of service? This is an established patient. She was seen within 3 years in your practice.

Established Requires two out of three key components	99212	99213	99214	99215
<b>History</b>	Problem focus required	Expanded problem focus required	Detailed required	Comprehensive required
<b>CC:</b>			4	4
<b>HPI:</b>			2	10
<b>ROS:</b>	1	1	1	3
<b>PFSH:</b>			✓	
<b>Examination</b>	1	2–7 expanded ✓	2–7 detailed	8

**Number of diagnoses and management option**

- New problem, additional work-up—4 points
- Also, two chronic stable conditions (or established problems)—2 points
- Total 6 points—extensive

**Amount and complexity of data**

- Review and /or order lab test—1 point
- Obtain old records and/or history from other source than patient—1 point
- Total 2 points—limited

**Risk**—new onset of DM—moderate

**Medical decision making must meet two of the three elements.**

No. of diagnoses	Complexity of data	Risk	Type pf decision making
≤1 minimal	≤1 minimal	Minimal	Straightforward
2 limited	<b>2 limited ✓</b>	Low	Low complexity
3 multiple	3 moderate	<b>Moderate ✓</b>	<b>Moderate complexity ✓</b>
≥4 <b>extensive ✓</b>	≥4 extensive	High	High complexity

Established Requires two out of three key components	99212	99213	99214	99215
<b>History</b> <b>CC:</b> <b>HPI:</b> <b>ROS:</b> <b>PFSH:</b>	Problem focus required 1	Expanded problem focus required 1 1	Detailed required 4 2 1 ✓	Comprehensive required 4 10 3
<b>Examination</b>	1	2–7 expanded ✓	2–7 detailed	8
<b>Medical decision making</b>	Straightforward	Low	Moderate ✓	High
<b>Time</b>	10 min	15 min	25 min	40 min

Note: Since the patient is an established patient, from the billing and coding standpoint, only two out of three key components are required. Therefore, physical exam is irrelevant.

**Answer: 99214**

### Preventive Visits [7]

The value of routine physical exams in general internal medicine practice continues to be debated [8].

If you choose to perform these types of exams in your practice, you can bill for this service using preventive visit codes for non-Medicare patients. Preventive exams for Medicare patients fall under the Welcome to Medicare exam and initial/subsequent Annual Wellness Visits.

CPT codes for preventive visits are as follows:

New patient:

99385 (patients 18–39 y of age)

99386 (40–64 y of age)

Established patient:

99395 (18–39 y of age)

99396 (40–64 y of age)

Preventive services are bundled services, and thus documenting preventive visits is more straightforward than E/M coding.

The following documentation is required:

- A comprehensive history including past, family social history as well as assessment/history of pertinent risk factors, and physical exam (components based on age and risk factors).

**Tip: If performing a preventive visit, screen for tobacco, alcohol use and other recreational drug use, and risky sexual behaviors.**

- Describe the status of chronic, stable problems that are not “significant enough to require additional work.”
- Describe the management of minor problems that do not require additional work.
- Document that a conversation occurred about age-appropriate counseling, screening labs, and tests, and order these labs/tests as appropriate.

Document that shared decision making occurred in regard to recommended vaccines that are relevant to patients’ age and risk factors and that vaccines were appropriately ordered.

## Screening [9]

### *Prostate Cancer Screening*

Screening for prostate cancer remains controversial. However, if you do perform shared decision making with a patient and decide to proceed with prostate cancer screening, there is a preventive code for this:

CPT code: G0102—digital rectal exam

Annually for all male Medicare beneficiaries aged 50 and older, co-payment/coinsurance, deductible applies.

**Tip: Document in physical exam that rectal exam was performed and its findings.**

### *Screening Pelvic Examinations*

CPT: G0101—Cervical or vaginal cancer screening and pelvic and clinical breast exam

All female Medicare beneficiaries, annually if at high risk or childbearing age with abnormal Pap test within past 3 years

Every 2 years for women at normal risk

Co-payment/coinsurance, deductible waived

## *Depression Screening*

CPT code: G0444 —Annual depression screening, 15 min

All Medicare beneficiaries covered, co-payment/coinsurance/deductible waived.

Must be furnished in a primary care setting that has staff-assisted depression care supports in place

**Tip: Have your staff administer a Patient Health Questionnaire (PHQ) 2 to all patients once a year during the check-in process.**

## **Medicare Services**

### *The Annual Wellness Visit*

Created as part of the Affordable Care Act, the Annual Wellness Visit (AWV) has high potential to increase revenue for a general internal medicine practice [10, 11]. Who can deliver the AWV?

1. Any primary care (PC) provider (MD, DO, NP, PA).
2. Any health professional “under direct supervision in the suite and immediately available to the PC Provider.”
3. Someone other than the provider billing for the service which can include health educators, nutritional professionals, and others; there are no credentialing requirements.

When is a patient eligible?

1. Medicare patients after the completion of their first year of Medicare participation can receive their initial AWV (G0438) and can receive this only once.
2. After the initial AWV, each year patients are eligible for subsequent AWVs (G0439).

**Tip: For the first year a patient participates in Medicare, they are eligible for the Welcome to Medicare Visit, or Initial Preventive Physical Examination, described later in this chapter.**

What are the requirements of an AWV?

1. Medical history (**tip: updated problem list can address this requirement**)
2. Medications, prescription and nonprescription (OTC, herbal products)
3. Family history
4. List of “current providers and suppliers” regularly involved in the patient’s care
5. Basic vital signs (height, weight, BP, BMI)
6. Detection of cognitive impairment based on provider’s best judgment (no specific test recommended)

**Tip: The Mini-Cog is a good screening test to use.**

7. Review of individual's "potential" risk factors for depression (no instrument specified)

**Tip: A PHQ2 works well here.**

8. An assessment of functional ability based on direct observation or the use of appropriate screening questions or screening questionnaire focused on the following:
  - (a) Hearing
  - (b) Activities of daily living (ADL)
  - (c) Fall risk
  - (d) Home safety

**Tip: A standard health risk assessment (HRA) form can help greatly here and worth the effort to create one for your practice. At a minimum, the HRA should include demographic data, self-assessment of health status, psychosocial risks, behavioral risks, and activities of daily living.**

**Also, the forced whisper test and the get up and go test can be quickly performed in a general internal medicine setting to assess hearing and gait instability/fall risk.**

9. A written schedule for needed US Preventive Services Task Force (USPSTF) recommendations and Advisory Committee on Immunization Practices vaccination needs

**Tip: Many electronic health records have patient education from external vendors already built into them. Use these opportunities to keep your practice from having to keep a large filing cabinet of paper copies of patient education topics.**

10. A list of risk factors and conditions for which primary, secondary, or tertiary interventions are recommended (highly discretionary)
11. Written advice or referral to appropriate health education or prevention services or programs

**Tip: Giving a patient a senior guide to resources in your area will meet these criteria, along with specific referrals if needed such as physical therapy if fall risk identified.**

With proper planning and teamwork, these visits can be performed in less than 30 min and generate significant revenue to the practice: Creating smartphrases within your electronic health record can reduce the keystrokes required to document these elements.

AWVs can be combined with other general internal medicine NEW and ESTABLISHED E/M codes such as 99201–99205 and 99211–99215 using the 25

modifier. Documentation must clearly reflect that more than a wellness visit has occurred.

**Tip: This can be done in your assessment by using ICD-10 for health maintenance for the AWW, and then using ICD-10s for the acute or chronic medical conditions also discussed, with a specific plan for each of these conditions clearly documented.**

### **The Initial Preventive Physical Examination (IPPE), also Known as the “Welcome to Medicare Preventive Visit”**

The goals of the IPPE are health promotion and disease prevention and detection. Medicare pays for one IPPE per beneficiary per lifetime for beneficiaries within the first 12 months of the effective date of the beneficiary’s first Medicare Part B coverage period [12, 13].

Components of the IPPE and required elements with smartphrases or templated checklists within your electronic health record can be very helpful at documenting and meeting these requirements.

1. Review the beneficiary’s medical and social history, including:

- Past medical/surgical history (experiences with illnesses, hospital stays, operations, allergies, injuries, and treatments)
- Current medications and supplements (including calcium and vitamins)
- Family history (review of medical events in the beneficiary’s family, including diseases that may be hereditary or place the beneficiary at risk)
- History of alcohol, tobacco, and illicit drug use
- Diet and physical activity

2. Review the beneficiary’s potential risk factors for depression and other mood disorders. Use any appropriate screening instrument for beneficiaries without a current diagnosis of depression from various available screening tests recognized by national professional medical organizations to obtain current or past experiences with depression or other mood disorders.

3. Review the beneficiary’s functional ability and level of safety. Use any appropriate screening questions or standardized questionnaires recognized by national professional medical organizations to review, at a minimum, the following areas:

- Hearing impairment
- Activities of daily living
- Fall risk
- Home safety

4. Exam requires the following:

Height, weight, body mass index, and blood pressure

Visual acuity screen

Other factors deemed appropriate based on the beneficiary's medical and social history and current clinical standards

5. End-of-life planning, which is verbal or written information provided to the beneficiary about the beneficiary's ability to prepare an advance directive in case an injury or illness causes the beneficiary to be unable to make health care decisions and whether or not you are willing to follow the beneficiary's wishes as expressed in the advance directive.

6. Educate, counsel, and refer based on the previous five components.

Based on the results of the review and evaluation services in the previous five components, provide education, counseling, and referral as appropriate.

7. Educate, counsel, and refer for other preventive services which include a brief written plan, such as a checklist, for the beneficiary to obtain:

A once-in-a-lifetime screening electrocardiogram (EKG/ECG), as appropriate

Appropriate screenings and other preventive services that Medicare covers

The CPT codes for the IPPE are:

G0402 Initial preventive physical examination: face-to-face visit, services limited to new beneficiary during the first 12 months of Medicare enrollment (wRVU = 2.43)

G0403 Electrocardiogram, routine ECG with 12 leads: performed as a screening for the initial preventive physical examination with interpretation and report

G0404 electrocardiogram, routine ECG with 12 leads: tracing only, without interpretation and report, performed as a screening for the initial preventive physical examination

G0405 electrocardiogram, routine ECG with 12 leads: interpretation and report only, performed as a screening for the initial preventive physical examination

## *Transition of Care Codes*

### **Transition Codes: 99459–99496 [14]**

In 2013, the Centers for Medicare and Medicaid Services (CMS) allows Transition Care Management (TCM) codes 99495 and 99496 to be used by physicians (any specialty) and the following non-physician practitioners (NPPs) who are legally authorized and qualified to provide the services in the State in which they are furnished:

Certified nurse-midwives (CNMs)

Clinical nurse specialists (CNSs)

Nurse practitioners (NPs)

### Physician assistants (PAs)

The services must be provided within the first 30 days post discharge.

Documentation must have the date of initial discharge, the date of post-discharge communication with patient or caretaker, the date of the first face-to-face visit, the medication reconciliation, and the complexity of medical decision making (moderate or high).

CPT code 99495

1. Communication (direct contact, phone, or electronic) with the patient and/or caregiver within 2 business days of discharge—this can be done by a licensed clinical staff (non-physician practitioners)

A member of your care team must make an interactive contact with the beneficiary and/or caregiver, as appropriate, within 2 business days following the beneficiary's discharge to the community setting. The contact may be via telephone, email, or face-to-face. For Medicare purposes, attempts to communicate should continue after the first two attempts in the required 2 business days until they are successful. If you make two or more separate attempts in a timely manner and document those in the medical record but are unsuccessful, and if all other TCM criteria are met, you may report the service.

Physicians or NPPs may furnish the following non-face-to-face services: Obtain and review discharge information (e.g., discharge summary or continuity of care documents); review need for or follow-up on pending diagnostic tests and treatments; interact with other health care professionals who will assume or reassume care of the beneficiary's system-specific problems; provide education to the beneficiary, family, guardian, and/or caregiver; establish or reestablish referrals and arrange for needed community resources; and assist in scheduling required follow-up with community providers and services.

2. A face-to-face visit within 7 calendar days of discharge
3. At a minimum, you must document the following information in the beneficiary's medical record:

Date the beneficiary was discharged

Date you made an interactive contact with the beneficiary and/or caregiver

Date you furnished the face-to-face visit

The complexity of medical decision making (moderate or high)

CPT code 99496

1. Communication (direct contact, phone, or electronic) with the patient and/or caregiver within 2 business days of discharge
2. A face-to-face visit within 14 calendar days of discharge
3. Documentation requirements as noted in 99496
4. The complexity of medical decision making (moderate or high)

## ***Home Health Care (HHC) Oversight***

The Affordable Care Act included provisions that increased physician responsibility for overseeing the utilization of ongoing Home Health Care services [15].

The Home Health Care Oversight CPT codes are:

- G0180, physician certification
- G0179, physician recertification

These codes are meant to reimburse physicians for their time spent establishing HHC plans, communicating with HHC agencies, and reviewing form 485s (the Home Health Certification and Plan of Care Form).

The following documentation is required (EHR smartphrases and templates very helpful):

- A physician must certify that a patient is eligible for Medicare home health services, and physician who establishes the plan of care must sign and date the certification.
- The patient needs intermittent skilled nursing care, physical therapist, and/or speech-language pathologist services.
- Reason the patient is confined to the home (i.e., homebound).
- A plan of care has been established and will be periodically reviewed by a physician.
- Services will be furnished while the individual was or is under the care of a physician.
- A face-to-face encounter—occurred no more than 90 days prior to the home health start of care date or within 30 days of the start of the Home Health Care—was related to the primary reason the patient requires home health services and was performed by a physician or allowed non-physician practitioner.
- The certifying physician must also document the date of the encounter.

## ***Coding and Billing for Counseling Services***

Coding and billing for common counseling services offered in a general internal medicine practice is underutilized. Understanding these codes and documentation requirements can improve your practice's bottom line. Below are CPT codes that are covered by Medicare. Medicaid and commercial insurance coverage for these CPT codes varies [9].

### **Advanced Directive Counseling [16]**

CPT Codes:

- 99497—Advance care planning including the explanation and discussion of advance directives such as standard forms (with completion of such forms, when performed), by the physician or other qualified health care professional: first 30 min, face-to-face with the patient, family member(s), and/or surrogate

99498—Each additional 30 min (list separately in addition to code for primary procedure)

Examples of appropriate documentation would include an account of the discussion with the beneficiary (or family members and/or surrogate) regarding the voluntary nature of the encounter, documentation indicating the explanation of advance directives (along with completion of those forms, when performed), who was present, and the time spent in the face-to-face encounter.

### ***Counseling to Prevent Tobacco Use [17, 18]***

CPT Codes:

99406—Smoking and tobacco-use cessation counseling visit, 3–10 min.

99407—Smoking and tobacco-use cessation counseling visit, greater than 10 min.

Medicare outpatient and hospitalized beneficiaries are covered (co-payment/coinsurance and deductible waived) and who meet the following:

Use tobacco, regardless of whether they exhibit signs/symptoms of tobacco-related disease

Competent and alert at time of counseling

Counseling furnished by a qualified physician or other Medicare-recognized practitioner

Two cessation attempts are covered per 12-month period. Each attempt may include a maximum of four intermediate or intensive counseling sessions. Therefore, the total annual benefit covers up to eight smoking cessation counseling sessions in a 12-month period.

**Tip: For counseling, use the 5 As as a template for documentation.**

**Assess:** Ask about/assess behavioral health risk(s) and factors affecting choice of behavior change goals/methods.

**Advise:** Give clear, specific, and personalized behavior change advice, including information about personal health harms and benefits.

**Agree:** Collaboratively select appropriate treatment goals and methods based on the patient's interest in and willingness to change the behavior.

**Assist:** Using behavior change techniques (self-help and/or counseling), aid the patient in achieving agreed-upon goals by acquiring the skills, confidence, and social/environmental supports for behavior change, supplemented with adjunctive medical treatments when appropriate.

**Arrange:** Schedule follow-up contacts (in person or by telephone) to provide ongoing assistance/support and to adjust the treatment plan as needed, including referral to more intensive or specialized treatment.

## Alcohol Misuse Screening and Counseling [19–21]

### CPT Codes:

G0442—Annual alcohol misuse screening, 15 min.

G0443—Brief face-to-face behavioral counseling for alcohol misuse, 15 min.

According to the USPSTF (2004), alcohol misuse includes risky/hazardous and harmful drinking which places individuals at risk for future problems; and, in the general adult population, risky or hazardous drinking is defined as >7 drinks per week or >3 drinks per occasion for women and >14 drinks per week or >4 drinks per occasion for men.

### ICD 10 Codes:

All Medicare beneficiaries eligible for alcohol screening (G0442) once a year and co-payment/coinsurance and deductible waived

Medicare beneficiaries who screen positive are eligible for counseling if:

They are competent and alert at time of counseling.

Counseling is furnished by qualified primary care physician and can be done up to 4 times a year.

The behavioral counseling intervention for aspirin use and healthy diet should be consistent with the five As approach that has been adopted by the USPSTF to describe such services:

**Assess:** Ask about/assess behavioral health risk(s) and factors affecting choice of behavior change goals/methods.

**Advise:** Give clear, specific, and personalized behavior change advice, including information about personal health harms and benefits.

**Agree:** Collaboratively select appropriate treatment goals and methods based on the patient's interest in and willingness to change the behavior.

**Assist:** Using behavior change techniques (self-help and/or counseling), aid the patient in achieving agreed-upon goals by acquiring the skills, confidence, and social/environmental supports for behavior change, supplemented with adjunctive medical treatments when appropriate.

**Arrange:** Schedule follow-up contacts (in person or by telephone) to provide ongoing assistance/support and to adjust the treatment plan as needed, including referral to more intensive or specialized treatment.

## Intensive Behavioral Therapy for Cardiovascular Disease [22]

### **CPT code G0446—Annual, face-to-face intensive behavioral therapy (IBT) for cardiovascular disease, individual, 15 min.**

Coverage of IBT for CVD, referred to as a CVD risk reduction visit, consists of the following three components:

1. Encouraging aspirin use for the primary prevention of CVD when the benefits outweigh the risks for men age 45–79 years and women 55–79 years
2. Screening for high blood pressure in adults age 18 years and older
3. Intensive behavioral counseling to promote a healthy diet for adults with hyperlipidemia, hypertension, advancing age, and other known risk factors for cardiovascular and diet-related chronic disease

The behavioral counseling intervention for aspirin use and healthy diet should be consistent with the five As approach that has been adopted by the USPSTF to describe such services:

**Assess:** Ask about/assess behavioral health risk(s) and factors affecting choice of behavior change goals/methods.

**Advise:** Give clear, specific, and personalized behavior change advice, including information about personal health harms and benefits.

**Agree:** Collaboratively select appropriate treatment goals and methods based on the patient's interest in and willingness to change the behavior.

**Assist:** Using behavior change techniques (self-help and/or counseling), aid the patient in achieving agreed-upon goals by acquiring the skills, confidence, and social/environmental supports for behavior change, supplemented with adjunctive medical treatments when appropriate.

**Arrange:** Schedule follow-up contacts (in person or by telephone) to provide ongoing assistance/support and to adjust the treatment plan as needed, including referral to more intensive or specialized treatment.

**\*\*For general internal medicine practices that have diabetes educators or nutritionists on their care team, the following preventive services should be offered.**

#### **Intensive Behavioral Therapy (Obesity) [23]**

CPT Codes:

G0447—Face-to-face behavioral counseling for obesity, 15 min.

G0473—Face-to-face behavioral counseling for obesity, group (2–10), 30 min.

Medicare pays for intensive behavioral therapy (IBT) for beneficiaries with a body mass index of 30 or greater. This service may be performed by a primary care physician, OB/GYN physician, nurse practitioner, physician assistant, or certified clinical nurse specialist. In CMS's decision memo to support covering the service, they said the [service may be performed incident to](#) a physician service by ancillary personnel.

“In the primary-care office setting, Medicare may cover these services when billed by the primary-care physician or practitioner and furnished by auxiliary personnel under the conditions specified under our regulation at 42 CFR section 410.26(b) (conditions for services and supplies incident to a physician's professional service).”

The benefit includes:

- One face-to-face visit every week for the first month
- One face-to-face visit every other week for months 2–6
- One face-to-face visit every month for months 7–12, if the beneficiary meets the 3 kg weight loss requirement during the first 6 months

The Medicare co-pay and deductible are waived for this service.

These services may be provided on the same day as an E&M service or a wellness visit (for Medicare patients), but the time of the counseling must be distinct from the other E&M services.

Be sure to document time and the nature of the counseling in the note.

## Medical Nutrition Therapy (MNT) [9]

97802—MNT: initial assessment and intervention, individual, face-to-face with patient each 15 min.

97803—MNT: reassessment and intervention, individual, face-to-face with patient each 15 min.

97804—MNT: group (2 or more individuals), each 30 min.

G0270—MNT reassessment and subsequent intervention for change in diagnosis, medical condition, or treatment, individual, 15 min.

G0271—MNT reassessment and subsequent interventions for change in diagnosis, medical condition, or treatment, group, each 30 min.

For patients to be eligible, they must:

Receive a referral

Be diagnosed with diabetes or renal disease or received a kidney transplant

The service must be provided by a registered dietitian or nutrition professional.

First year: 3 h of one-on-one counseling.

Subsequent years: 2 h.

## Diabetes Self-Management Training (DSMT) [9]

G0108—DSMT, individual, per 30 min.

G0109—DSMT, group (2 or more), per 30 min.

Eligible patients are:

Medicare beneficiaries diagnosed with diabetes

Those who receive an order for DSMT from physician or qualified NPP

Up to 10 h in initial year

Up to 2 h of follow-up training each year after 1st year

## Modifiers

### Coding Nuances to be Aware of in a General Internal Medicine Practice

#### Modifier 25 [7, 24]

When providing a problem-oriented E/M service or procedure with a preventive visit, you should include the modifier 25 in your coding to enable you to be paid for both services. Modifier 25 is appropriate when there is a “significant, separately identifiable evaluation and management service by the same physician on the same day.” If the second service requires enough additional work that it could stand on its own as an office visit, use modifier 25.

Attach modifier 25 to the problem-oriented E/M code instead of the preventive services code.

If a procedure was done in addition to the preventive service, attach the 25 modifier to the preventive visit code.

#### Modifiers to Use When Supervising Resident Physicians

#### Modifier GC [25]

When an E/M service is provided by interns or residents under a teaching physician in an approved Graduate Medical Education program, GC modifier must be used. Teaching physicians must see all interns’ patients during the first 6 months of training.

For documentation, these are examples given by CMS:

- “I performed a history and physical examination of the patient and discussed his management with the resident. I reviewed the resident’s note and agree with the documented findings and plan of care.”
- “I was present with resident during the history and exam. I discussed the case with the resident and agree with the findings and plan as documented in the resident’s note.”
- “I saw and evaluated the patient. I reviewed the resident’s note and agree, except that picture is more consistent with pericarditis than myocardial ischemia. Will begin NSAIDs.”

### **Modifier GE for Primary Care Exception [25]**

The Primary Care Exception (PCE) is allowed for Graduate Medical Program. This exception allows trainees to bill the service when faculty are not physically seeing the patients.

To use the primary care exception, a primary care center must attest the following requirements:

1. The center is located in an outpatient department of a hospital or another ambulatory center which patient care provided by residents is tied to a teaching hospital.
2. The residents must have completed more than 6 months of residency training.
3. The ratio of teaching faculty to residents is 1:4.
4. The teaching faculty must be in proximity to provide immediate availability.
5. The teaching faculty must not have other responsibilities such as the supervision of other nonresident or medical student learners.
6. The teaching faculty must review medical records and document the participation.
7. The primary care center is the site for patients to receive continuity of care provided by the residents during their residency training.

The modifier **GE** should be used for Primary Care Exception instead of **GC** which is used when patients are physically seen and examined by attending physician.

The levels of services for PCE are 99201, 99202, 99203, 99211, 99212, and 99213 (level three is the highest level that can be billed for Medicare-only patients if not seen by an attending physician).

The Healthcare Common Procedure Coding System (HCPCS) codes are included in the primary care exception.

G0402—Initial preventive physical examination, face-to-face encounter for new beneficiary during the first 12 months of Medicare enrollment

G0438—First Annual Wellness Visit

G0439—Subsequent Annual Wellness Visit

**Note: The Transition of Care codes is not eligible for the primary care exception.** If Transition of Care visits is performed in a teaching setting, the attending physician must see the patient to use the Transition of Care codes.

An example for documenting the Primary Care Exception is as follows: “I have reviewed with the resident Dr. \_\_\_\_\_’s medical history, physical examination, diagnosis, and results of tests and treatments and agree with the patient’s care as documented in the resident’s note.”

## Relative Value Units for E/M Visits, Preventive Visits, and Services

Relative value units (RVUs) are composed of three components: physician work RVU, practice expense RVU, and malpractice RVU [26].

Medicare mandates updating of RVUs every 5 years, and CMS has delegated the task to the Relative Value Update Committee (RUC), a committee of the American Medical Association (AMA). Also charged to review RVUs is the Medicare Payment Advisory Commission (MedPAC), an independent federal body that the Congress established in 1997 to analyze access, quality of care, and other issues affecting Medicare.

The Medicare conversion factor (CF) is a scaling factor that converts the geographically adjusted number of RVUs for each service in the Medicare physician payment schedule into a dollar payment amount. Adjustments in the CF have been based on three factors [27]:

- The Medicare Economic Index
- An expenditure target “performance adjustment”
- Miscellaneous adjustments including those for “budget neutrality”

The calendar year 2016 conversion factor is \$35.8043.

To calculate wRVU for each CPT code, use <https://www.aapc.com/practice-management/rvu-calculator.aspx> [28].

New patient office visit CPT code	wRVU <sup>a</sup>	Reimbursement rate <sup>a</sup> [29]
99201	0.48	\$44.61
99202	0.93	\$76.20
99203	1.42	\$110.25
99204	2.43	\$168.36
99205	3.17	\$211.17

Established patient office CPT code	wRVU <sup>a</sup>	Reimbursement rate <sup>a</sup>
99212	0.48	\$44.27
99213	0.97	\$74.42
99214	1.50	\$109.65
99215	2.11	\$147.76

Transition Care Management	wRVU <sup>a</sup>	Reimbursement rate <sup>a</sup>
99495	2.11	\$167.75
99496	3.05	\$236.38

<sup>a</sup>An estimate reimbursement rate which may vary by demographic location

## Maximizing Revenue

### How to Optimize Practice Revenue in a General Internal Medicine Practice: Putting It All Together

1. Schedule face-to-face appointments that have the highest value.
2. Take full advantage of billing/coding for counseling and preventive services.
3. Use the -25 modifier.
4. Avoid the GE modifier for complex patients.
5. Bill for Home Health Care Certifications.

#### 1. Schedule face-to-face appointments that have the highest value.

The table below is a ranking of Medicare visit types and relative value units, from highest value to lowest value.

Visit type	CPT	wRVU [28]
Transition of care— 7 days	99496	3.05
Medicare Annual Wellness Visit (initial)	G0438	2.43
New patient	99204	2.43
Transition of care—14 days	99495	2.11
Medicare AWV subsequent	G0439	1.50
Established patient	99214	1.50
New patient	99203	1.42
Established patient	99213	0.97

Most general internal medicine patient schedules are filled with established patient visits, E/M codes 99213 and 99214.

Evaluating the opportunity costs of how a general internist’s time can best be spent to result in optimal practice financial success, the wRVUs favor schedules that prioritize Transition of Care (TOC) visits and Annual Wellness Visits. Note the wRVU for a 7-day TOC visit (3.05 wRVU) is two times higher than that of an established patient presenting for f/u of three chronic conditions, which most likely represents a 99214 visit (1.50 wRVU).

Be sure to monitor your inpatient census and always be open to scheduling a 7-day TOC visit type.

Leave some slots in your schedule for Annual Wellness Visits. This is a good way to talk to your patients about their health and wellness and also a way for you to improve the financial health of your practice.

## 2. Take full advantage of billing/coding for counseling and preventive services.

Build a process that systematically screens your patients once a year for depression (a PHQ2 works well), tobacco use, and alcohol use (an AUDIT-C works well). Your medical assistants can ask these questions and/or give the patient a handout of the questionnaires.

Let us look at an example of a 68-year-old male patient who presents for follow-up of hypertension, diabetes, and hyperlipidemia.

You could offer him his Initial Annual Wellness Visit and use the –25 modifier if you document that you reviewed and wish to continue/change the treatment plan for his chronic conditions.

This would generate wRVUs of 2.43 for the AWV and 0.97 for the 99213 follow-up visits.

Screening for depression (G0444, wRVU 0.18) and alcohol use (G0442, wRVU 0.18) can generate an additional 0.36 wRVU.

If the screening test is positive for tobacco use and/or alcohol use, if you provide counseling using a five As template for tobacco counseling (99406, 0.24 wRVU) and alcohol misuse (G0443, 0.45), that will generate an additional 0.69 wRVU.

If the patient being screened is interested in prostate cancer screening and you perform a rectal exam, you can use CPT code to generate an additional 0.17 wRVU.

The patient with hypertension, hyperlipidemia, and diabetes is a candidate for Intensive Behavioral Therapy for Cardiovascular Disease. You have a template to document that this occurred using the 5 A's approach, and you generate an additional 0.45 wRVU.

So by creating a workflow that systematically screens for and delivers counseling services, you have taken a simple 99214 visit and a total wRVU of 1.50 to a 99214 visit (1.50 wRVU) PLUS  $0.36 + 0.69 + 0.17 + 0.45 = 1.50 + 1.67 = 3.17$  wRVU.

The other opportunity you had was to do an Initial Annual Wellness Visit (wRVU 2.43) and use the –25 modifier and bill a 99213 visit (0.97 wRVU) which equals 3.4 wRVUs, still a better choice.

And do not forget to take advantage of the Advanced Directive Counseling code. Take advantage of using this code when you do an Annual Wellness Visit, which will increase the value of that visit by 1.50 wRVUs.

A ranking of Medicare preventive services and relative value units is in the table below [30].

Preventive service	HCPCS/CPT	wRVU
Advanced Directive Counseling	99497	1.50
Alcohol misuse counseling	G0443	0.45
Intensive Behavioral Therapy for Cardiovascular Disease	G0446	0.45
Counseling to prevent tobacco use 3–10 min	99406	0.24
Alcohol misuse screening	G0442	0.18
Depression screening	G0444	0.18
Prostate cancer screening	G0102	0.17

### 3. Use the –25 modifier.

As shown in the example above, if you perform an Annual Wellness Visit and also cover chronic medical conditions with an updated treatment plan, use the –25 modifier to bill for the preventive visit and for the established visit. If the visit included a procedure along with discussing a medical concern, attach the –25 modifier to the E/M visit code.

### 4. Avoid the GE modifier for complex patients.

Did a resident just sign out to you a complicated patient with three chronic medical conditions and/or a new problem with further work-up required? Take the opportunity to earn 0.53 more wRVUs by going in to see that patient and avoid the use of the GE Primary Care Exception for complex patients. If you do that for 2000 patients in a given year, that will generate additional \$38,000 to your practices bottom line!

### 5. Bill for Home Health Care Certifications

Do you and your faculty express frustration at completing paperwork with no reimbursement? There is an excellent opportunity to get paid for reviewing Home Health Care Certification and care plans.

Take advantage of creating a template/smartphrase in your EHR for documenting the requirements. A suggested checklist is as follows:

The patient is homebound because (list reason).

Physical findings supporting homebound status include (describe why homebound).

The patient is under my care, and I have authorized home health services, and I certify that they are necessary (describe what home care is offering).

The patient was last seen in the office to address Home Health Care was (must occur no more than 90 days prior to the home health start of care date or within 30 days of the start of the Home Health Care).

Not only will this checklist allow you to bill for Home Health Certification, it also provides an excellent tool to teach interns/residents what elements of documentation are required for Home Health Care, and by following the discipline of the checklist, you may find patients who are no longer benefiting from Home Health Care.

## Conclusion

The success of an academic medicine clinic is determined not only by having an outstanding ambulatory curriculum but also by generating maximum revenue to provide more ancillary resources and support faculty and clinic personnel. Understanding the billing and coding requirements will allow teaching physicians to apply all the possible billable services to achieve maximum wRVUs. This knowledge can further be passed onto house staff to prepare them for their future clinical practice.

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**Part II**  
**Resident Clinic Requirements**

# Chapter 5

## ACGME Requirements/Accreditation Issues



Craig Noronha and Mark E. Pasanen

### Introduction

The Accreditation Council for Graduate Medical Education (ACGME) is a private nonprofit organization that accredits institutions, residency, and fellowship programs. Accreditation occurs via a voluntary process of evaluation and review based on published standards. By maintaining accreditation, an institution and residency program can provide assurance that it is meeting specified quality standards. In 2013, the accreditation system was revamped to the Next Accreditation System (NAS) [1]. The NAS was designed to reduce the barriers and complexities inherent in the previous accreditation system. In the previous system, programs would be evaluated by episodic reviews every 4–5 years. With NAS, programs submit data on an annual basis which is then evaluated by an ACGME Review Committee. The episodic on-site review intervals have now been increased to every 10 years in most cases unless there is a significant violation that requires a more timely evaluation. Another aspect of the NAS was the development of the Clinical Learning Environment Review (CLER), an episodic site visit that evaluates the learning environment for all residency and fellowship programs at a particular institution [2].

The requirements act as a guide for basic requirements and can also be used to support increased resource allocation from the institution. Failure to follow the requirements can result in probation, or even worse, closure of a program. Clinic

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directors can use the ACGME clinic requirements as leverage to help ask for more resources such as more preceptors or access to an EMR [3].

There are no defined requirements for resident clinic leadership. However, we would suggest that program directors work with clinic directors to identify and appropriately fund the resident clinic director position. There are numerous ACGME requirements along with other foreseeable and unplanned issues that arise in resident clinic. Identifying a faculty member who can oversee the resident clinic experience can help improve patient care, improve integration of the resident clinic into the institutional clinic, promote communication with preceptors, and improve the resident experience. The resident clinic director may also have non-ACGME specified duties such as evaluating and giving feedback to preceptors. Depending on the number of residents in a clinic, the FTE allocated to this position may vary from a small percentage effort to a considerable percentage effort.

## Learning Objectives

1. Understand ACGME requirement for continuity clinics, including scheduling issues, preceptor-to-resident ratios, and faculty expectations.
2. Recognize importance of incorporating practice evaluation and population health into resident continuity clinics.
3. Understand the duties expected of residents in continuity clinic.
4. Identify the challenges clinics face in meeting requirements.

## Outline

- Continuity Clinic Requirements
  - Continuity Clinic Schedule requirements
  - Resident-to-Preceptor Ratio
  - Faculty Requirements
- Resident Practice Evaluation
- Patient Care Duties for residents
- Challenges

## Continuity Clinic Requirements

In 2009, the ACGME published a new set of requirements for internal medicine. As part of these requirements, there was an increased emphasis on more flexible ambulatory experiences for residents. These changes in requirements have helped fuel

innovations within resident education including new scheduling models such as the X + Y model or the ambulatory long block while maintaining a commitment to longitudinal care [4].

### ***Continuity Clinic Schedule Requirements***

The ACGME requires that at least 1/3 of residency time must occur in the ambulatory setting including continuity clinics and other ambulatory experiences (emergency department rotations can count for no more than 2 weeks). In addition, there is a requirement of at least 130 distinct half-day outpatient sessions per resident over the course of at least 30 months. The maximum duration of time between clinic sessions should be no greater than 1 month excluding vacation time. This time limit helps prevent possible continuity issues that would occur if a program held multiple sessions in a short period of time or if there was a scheduling conflict that prevented a resident from having a clinic. It should be noted that ACGME does not specify how many patients must be seen per session. The ACGME also requires that residency programs develop models and schedules for ambulatory training that minimize conflicting inpatient and outpatient responsibilities.

Each clinic site is required to have a program letter of agreement (PLA) with the residency program if they are not directly part of the health care system affiliated with the residency. The PLA is renewed every 5 years. As part of the PLA, the clinic must identify faculty who will assume both educational and supervisory responsibilities for residents. All faculty who teach or supervise residents must have current certification in internal medicine by the American Board of Internal Medicine and possess qualifications judged acceptable to the ACGME Review Committee. Thus, faculty from other specialties such as family medicine or other providers such as nurse practitioners cannot supervise residents in clinic unless there is a special exception made by the ACGME. The clinic is responsible for identifying and recruiting faculty that fulfills these roles.

The ratio of learners to preceptors, including medical students and residents, must not exceed 4:1. There are no studies on optimal learner-to-resident ratios, but in our experience at Boston University and the University of Vermont, a 3:1 ratio allows for an optimal balance of integrating teaching opportunities with appropriate and efficient use of preceptor time. When a faculty member is precepting residents, they cannot have other patient care duties when supervising more than two residents or other learners such as medical students. If they only supervise 1–2 residents and/or learners, they can also see their own patients at the same time. However, in sites that use the Medicare Primary Care Exception, preceptors that see their own patients are required to see all resident patients [5]. In general, we would discourage preceptors seeing their own patients as the complexities of seeing patients and precepting at the same time may detract from the teaching experience and can decrease direct observation of the learners.

## **Resident Practice Evaluation**

Over the last decade, there has been an increased emphasis on performance data and quality metrics by our health systems, insurance companies, and accreditation boards. In anticipation of this increased focus on quality measures, the ACGME has modified its requirements to help prepare residents for the future healthcare environment. As part of the continuity clinic experience, the ACGME requires that each resident has an evaluation of their performance data for their continuity panel. The performance data relates to both their chronic disease management and preventive healthcare. It should be noted that there are no specifics in terms of which diseases, which preventive measures, or how many data points should be evaluated for each resident. Associated with this evaluation is a requirement that each resident develop and implement a plan based on this data to improve their performance, with faculty supervision. This plan should be evaluated at least twice year. While it is not specifically mentioned in the ACGME requirements, practice improvement modules (PIMs) are a common tool used to assess performance [6–8]. These modules often offer structured data collection and provide direction on assessing for improvement. Clinics can develop these tools to coincide with the local clinic quality improvement projects. Clinic directors may work with the residency program especially if the residency has multiple clinic locations. A residency program may utilize a generic PIM that can be applied with slight modification to each clinic location.

## **Patient Care Duties for Residents and Clinic Resources**

The continuity clinic experience must be longitudinal with residents developing a continuous long-term relationship with a panel of general internal medicine patients. The resident must serve as the primary physician for a panel of patients and be responsible for preventive healthcare, chronic disease management, and care of acute health problems.

Between outpatient visits, residents are required to be accessible so that they can be involved in the longitudinal management of their patient panel. If the resident is not available, there must be a process or system in place to provide coverage for urgent issues.

The ACGME is aware that resident clinics can sometimes be under-resourced, and residents may be asked to perform nonphysician duties that do not add benefit to their training experience. The ACGME requests that the clinic be responsible for creating systems to prevent residents from performing routine clerical functions, such as scheduling tests and appointments, and retrieving records and letters. The residency program is also required to provide access to an electronic health record (EHR) or demonstrate that the institution is in the process of implementing an EHR.

## Challenges Meeting ACGME Requirements

Not surprisingly, there are a number of challenges to create a successful longitudinal clinic. Meeting all of the requirements requires a significant amount of effort and coordination, but it is also critical to create a positive clinical experience for the residents and patients. One of the initial issues to address is assuring minimization of conflict between the inpatient and outpatient settings. The block system has been one popular and effective way to separate these experiences – but programs continue to be creative in addressing this issue, including programs going to full clinic days during inpatient rotations. Another challenge is providing continuity of care during times that residents are not physically present in clinic [9–12]. Electronic health records have helped immensely but also add to the workload of residents while delivering outpatient care. Documentation and completion of EMR-related patient care tasks add the workload of resident physicians and may in fact lead to duty hour violations [13]. Faculty and covering residents can be part of the solution in trying to achieve more seamless and patient-centered care. In the authors' experience, some of the most difficult barriers to adherence to requirements have been the population health and practice evaluation requirements. It is critical to engage and develop faculty, as residents frequently require structure, support, and assistance in trying to achieve successful practice improvement interventions.

## Conclusion

Overall, involvement and leadership in a resident continuity clinic can be incredibly satisfying experience. Clearly, there are challenges, but awareness of the requirements is an extremely important component to making it successful for leadership, preceptors, residents, and patients. Frequently, knowledge of the requirements can help advocate for necessary changes and resources. In addition, working closely with program administration is critical.

### ACGME requirements as of July 2016 (4)

Topic	Requirement
Required ambulatory time	At least 1/3 of residency time must occur in ambulatory setting
Continuity clinic	Each resident should have a minimum of 130 distinct half-day outpatient sessions, extending at least over a 30-month period
Max clinic intervals	Time between clinics should be <1 month, not including vacation time
EMR	Programs are required to provide access to an electronic health record or demonstrate institutional commitment to implementation of an EMR
Teaching faculty requirements	The physician faculty must have current certification in the specialty by the American Board of Internal Medicine

Topic	Requirement
Faculty duties while precepting	Faculty must not have other patient care duties while supervising more than two residents or other learners
Resident/preceptor ratio	Ratio of resident or other learners to faculty preceptors not to exceed 4:1
Resident practice evaluation	Each academic year, there has to be an evaluation of performance data for each resident’s continuity panel of patients relating to both chronic disease management and preventive healthcare

**Specific ACGME wording for each requirement**

Ambulatory time	<b>At least 1/3 of the residency training time must occur in the ambulatory setting.</b> Emergency medicine may count for no more than 2 weeks toward the required 1/3 ambulatory time
Continuity clinic	Residents must have a longitudinal continuity experience in which residents develop a continuous, long-term therapeutic relationship with a panel of general internal medicine patients. Programs must develop models and internal medicine schedules for ambulatory training that minimize conflicting inpatient and outpatient responsibilities  Each resident’s longitudinal continuity experience must include the resident serving as the primary physician for a panel of patients, with responsibility for chronic disease management, management of acute health problems, and preventive healthcare for their patients
Clinic # required	<b>Each resident should have a minimum of 130 distinct half-day outpatient sessions, extending at least over a 30-month period,</b> devoted to longitudinal care of the residents’ panel of patients
Clinic intervals	<b>Time between clinics should not be interrupted by more than a month,</b> not inclusive of vacation
Clinic sites-	There must be a program letter of agreement (PLA) between the program and each participating site providing a required assignment. The PLA must be renewed at least every 5 years. The PLA should identify the faculty who will assume both educational and supervisory responsibilities for residents
EMR access-	Programs are required to provide access to an electronic health record. In the absence of an existing electronic health record, institutions must demonstrate institutional commitment to its development and progress toward its implementation
Clinic resources-	Outpatient systems to prevent residents from performing routine clerical functions, such as scheduling tests and appointments, and retrieving records and letters
Teaching faculty-	<b>The physician faculty must have current certification in the specialty by the American Board of Internal Medicine</b> or possess qualifications judged acceptable to the Review Committee  At each participating site, there must be a sufficient number of internal medicine faculty with documented qualifications to instruct and supervise all residents at that location  Faculty must devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities and to administer and maintain an educational environment conducive to educating residents in each of the ACGME competency areas
Faculty duties	<b>Faculty must not have other patient care duties while supervising more than two residents or other learners.</b> Other faculty responsibilities must not detract from the supervision and teaching of residents

Ratio res/ preceptor	Must maintain a <b>ratio of residents or other learners to faculty preceptors not to exceed 4:1</b>
Practice evaluation	Each academic year, there has to be an evaluation of performance data for each resident's continuity panel of patients relating to both chronic disease management and preventive healthcare. Residents must receive faculty guidance for developing a data-based action plan and evaluate this plan at least twice a year
Patient care	Residents should be accessible to participate in the management of their continuity panel of patients between outpatient visits. There must be systems of care to provide coverage of urgent problems when a resident is not readily available

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# Chapter 6

## Resident Clinic Orientation and Expectations



Emily Fondahn and Daniel S. Kim

### Introduction

Every July, approximately 1/3 of the medicine residents will change due to graduation of senior residents. This transition requires a comprehensive and useful orientation program for the new house staff in the outpatient clinic(s). Orientation should not be viewed as a single lecture but rather as a series of activities and resources designed to develop proficient and efficient interns and residents. The clinic structure and guidelines should be reassessed each year to ensure the most efficient workflow and a smooth transition for the new house staff. While not exhaustive, this chapter serves as a broad overview and basic guideline to organize the clinic orientation. More in-depth discussions of each component can be found in other chapters of this book.

### Learning Objectives

1. Identify key components to cover in resident clinic orientation.
2. Discuss how to familiarize residents with clinic workflow and policies.
3. Describe strengths and weaknesses of clinic orientation resources.

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## Outline

- Main components of the clinic
- Resident workflow
- Orientation
- Schedules
- Clinic policies and procedures
- Resources for residents
- New attending orientation

## Clinic Topics to Cover

The curriculum to cover during orientation may seem endless. Each clinic will have specific processes and policies that should be personalized and incorporated into orientation. However, below is a basic list of topics to serve as a framework for your specific orientation and can serve as a checklist. As expected, residents are more interested in topics that directly pertain to their workflow, such as ordering labs or writing prescriptions, rather than administrative information like phone numbers or policies.

- **Key clinic components**
  - Basic clinic information
  - Hours of operation
  - Address
  - Clinic leadership contact information
  - Daily clinic schedule
  - Clinic layout
  - Clinic policies and procedures
- **Team members**
  - Attending physicians
    - Contact information
    - Role in clinic
    - Policies regarding staffing and when attending sees patient
  - Nurses
  - Medical assistants
  - Advance practice providers
  - Clinic administrators (Practice Manager, Clinical Nurse Manager)
  - Support staff
  - Ancillary providers (pharmacists, social workers, nutritionists, diabetes educators)
  - Interpreter services

- **Clinic workflow**

- Type of patient visits (new, return, physical, urgent)
- Check in process
  - Patient registration
  - Rooming patient, including if flag system used
- Nurse/medical assistant check-in process
  - Required questions and documentation such as smoking status and advanced directives
  - Location of nursing documentation
- Task system: how resident receives notifications about patient phone calls, refill requests, and laboratory results
- Check-out process
  - Laboratory location and services
  - Medication prescribing
  - Referral appointments
  - Test scheduling
  - Ancillary staff appointments

## **Residents' Workflow**

- Staffing patients with attendings
  - Where and when to present patients to faculty preceptors
  - Which patients need to be seen by attending
  - General guidelines for information to include in oral presentation
  - Documentation guidelines
- How to write a note
- Types of notes
  - Telephone call documentation
  - Office visit note
  - Patient letter
- Attending attestation
- Health maintenance
- Templates available
- Cut and paste policy
- Timeline for note completion
- Order Entry
  - How to order a medication
  - How to reconcile medication list
  - How to refill a medication
  - Lab order entry

- Imaging and procedure order entry
- Prior authorization information
- Referrals
  - How to refer to a specialist
  - Where referral notes are located in electronic health record (EHR)
  - How to make nonphysician referrals (dentist, physical therapy, home health)
- Clinic treatments
  - Vaccinations available in clinic
  - Medications available in clinic
  - Procedures performed in clinic
  - Emergency department/direct admission process

## Orientation Methods

- General Overview of Clinic: Broad overview of information covered in this chapter pertinent to residents
  - Typically done once in the beginning of the year or at the start of the residents' first ambulatory rotation
  - Usually a didactic lecture but can be recorded and available online
- Computer Training: Residents will likely have EHR training done as part of their general orientation. If the clinic site has a different EHR residents will need additional hands-on orientation for that system. A refresher EHR session can be useful in the fall, to reinforce how to use the EHR and also to answer questions.
  - Strengths
    - Hands-on training in a computer lab.
    - Sessions led by EHR support staff.
    - Usually high-yield.
    - Short clips can be recorded and placed on website.
    - Can have residents demonstrate how to do certain tasks.
  - Limitations
    - May seem out of context or overwhelming to someone that has not worked in that system.
    - May be temporally separated from clinic rotations.
    - Difficult to assess resident's retention of knowledge.
    - No one may be available from EHR support staff for help while in clinic.
- Intern Shadowing of a Senior Resident or Attending: The Primary Care Medicine Clinic at Washington University has started having an intern shadow a senior resident for their first clinic session a few years ago. This session allowed the intern to firsthand see the flow of the clinic. The intern can use a checklist to ensure that they observe important elements of the clinic visit (Table 1).

**Table 1** Intern shadowing resident checklist

These should be observed by the intern while shadowing a resident:
<i>Clinic layout</i>
• Exam rooms
• Printer stations
• Clinic mailboxes
• Attending work rooms
• Conference room
• Break room
• Offices for clinic staff (social work, diabetes educator, INR nurse, pharmacists)
<i>Electronic medical record</i>
• Verify that login and password work for EHR
• Look up schedule
• Look up patient
• See appointments tab (previous appointments, upcoming appointments)
• Start a new note
• Write a new prescription and send to pharmacy
• Print a prescription
• Order a lab/study and print requisition
• Make a referral
• Review task list
<i>Clinic flow</i>
• Observe residents evaluating a patient
• Observe residents staffing with attending
• Observe residents checking out a patient
• See patient face sheet and learn how to fill out
• Exam room flags
• Learn where to find room assignments and charge nurse

– Strengths

- See workflow in the clinical context.
- Opportunity to practice common tasks, like prescription writing or order entry.

– Limitations

- Decreases number of patients seen in clinic and delays the first clinic session for the intern.
  - Dependent on interaction between the intern and resident/attending.
  - Administrative work to arrange shadowing schedule.
  - Depending on size of program, may need many people willing to have interns shadow.
- Resident Shadowing of an Intern: A senior resident shadows an intern for a clinic session. These sessions allow interns to obtain formative feedback about clinic performance and have questions answered about the clinic in a real-time setting by a senior resident. The resident can use a checklist to ensure that they observe important elements of the clinic visit (Table 2).

**Table 2** Resident shadowing intern checklist

<i>Verify that the intern knows how to:</i>
• Start a note
• Place a referral
• Write a prescription
• Order a lab or study
<i>Patient evaluation</i>
• Assess the intern's ability to take a thorough and focused history
• Does the intern...
• Evaluate too few/too many problems in a visit?
• Spend too much time going through entire problem list?
• Have difficulty prioritizing problems?
• Interrupt the patient frequently?
• Perform a focused physical exam?
• Evaluate the patient's medication list?
• Take a focused review of systems?
• Update key information?
<i>Evaluate the intern's use of the EHR during the patient encounter</i>
• Does the intern...
• Make poor eye contact with patient due to looking at computer?
• Spend too much time/too little time looking up patient information before the visit?
• Have difficulty writing prescriptions, ordering labs, making referrals, etc.?
<i>Attending presentation</i>
• Is the intern able to give an accurate and organized presentation to the attending?
• Was any information left out during the presentation?
• Did the intern have a clear problem list and plan?
<i>Organization</i>
• Does the intern come to clinic prepared?
• Does the intern spend too much/too little time looking up patients prior to seeing them?
• Is the intern able to handle late patients or patients moved onto their list?
• How many patients did the intern see? Did they stay on time?
<i>Notes</i>
• Were the notes written in a timely manner based on clinic guidelines?
• Was any information missing in the notes?
• Was the problem list, allergies, and medication list updated?
• Did the plan accurately reflect what was discussed at the visit?

- Strengths

- The senior can answer questions about the EHR, clinic resources, and workflow.
- The senior can provide immediate feedback regarding efficiency, patient interactions, presentations, and notes.
- The feedback can be incorporated into an evaluation to verify that the intern is achieving specific milestones.
- Can have later in academic year to address gaps in knowledge.

- Limitations

- Decrease number of patients seen in clinic if senior resident taken off the schedule
- Dependent on interaction between the intern and resident
- Administrative work to arrange shadowing schedule
- Depending on size of program, may need many people willing to shadow the interns

- **Ambulatory Boot Camps**

Given that interns will start residency with a wide range of ambulatory training, an intern ambulatory boot camp can be created for the beginning of the year. One program developed a program based on case-based didactic sessions of common ambulatory topics and orientation to the clinic and electronic medical record. The knowledge scores improved from 43.6% pretest to 76.1% posttest [1].

- Strengths

- Assesses baseline knowledge of the interns
- Level-sets the knowledge for common ambulatory topics
- Increases confidence of interns in ambulatory topics

- Limitations

- Significant work coordinating didactic sessions with faculty
- Can add additional days to orientation training
- Unclear if boot camp will have impact on clinical skills or performance

- **Resident and Attending Evaluations**

- Resident evaluation by an attending: At orientation, residents should learn when and how they will be evaluated by an attending. These evaluations can either be summative or formative evaluations. Residents should also be aware of what milestones will be assessed and how the assessment will be done during their clinic rotations.
- Attending evaluations by residents: A resident should have the opportunity to evaluate the clinic attendings throughout the year. Clinic orientation should include how the process of how clinic attendings are evaluated, when the evaluations are completed, and which attendings the resident will evaluate. Information about how to address concerns regarding an attending should be included.

## Teaching Expectations for Residents

Ambulatory clinics use a variety of teaching methods, including morning report, lecture series, or online modules. Examples of resident teaching can include presenting a case for ambulatory report, providing a 30 minute didactic session, or creating a brief evidence-based medicine handout. If residents are required to teach as part of the ambulatory curriculum, they will appreciate having a schedule in advance and clear expectations for the sessions. Information should include:

- Learning objectives for presentation
- What needs to be prepared by the resident (if applicable)
  - PowerPoint slides
  - Handouts
- Example of an “ideal” presentation
- Date of presentation
- Required readings
- If and how residents will be evaluated

## Clinic Policies and Procedures

- Patient Safety and Quality: Patient safety and quality improvement initiatives are becoming ubiquitous in clinics. At a minimum, residents should have a clear understanding of adverse event reporting regarding what to report and how to report this information. Additionally, residents should know what the clinical quality improvement projects are, how they are measured, and what the residents are required to do for these QI projects.
- Telehealth (if applicable): Most interns will have little to no experience with an answering service or responding to patient telephone calls. Typical signals used in patient care, such as a physical exam, lab results, and visual cues, are not available on the phone. Other limitations may include residents covering for each other or lack of time/outside distractions when taking phone calls. Furthermore, they will need explicit instruction on policies and expectations regarding patient portals. Residents should know what the expectations are for answering patient phone calls, especially after hours and weekends. Next, they should receive instructions outlining the type of patient information to be received, the triaging service, and the appropriate time frame and method for returning a call (personal or clinic phone, patient portals, hospital operator, etc.). There are many ways to handle a phone call, including counseling the patient over the phone, sending them to the emergency department, or scheduling them for an urgent visit the next morning. In addition, residents should be given information about any tele-

phone medicine policies such as narcotic refills over the phone, who covers patient calls at night and for vacation, and documentation of telephone conversations. Finally, contact information for a supervising physician should be provided if they are uncertain how to handle a patient phone call. Residents may want to practice these phone calls using clinical vignettes or role-playing [2].

- **Chronic pain medications:** Given the current opiate epidemic, many clinics have developed policies and protocols for chronic pain medications. These policies should be covered with incoming residents along with how to communicate concerns regarding patients on opiates (discussed in chapter “Safe Opioid Prescribing and Controlled Substance Policies”).
- **Expected time frame for verification of labs and imaging:** One anxiety provoking moment for most new residents is what to do with an abnormal test result. Often new interns do not have enough clinical experience to know how to manage an abnormal result. Throughout the year, this knowledge deficit decreases as residents gain more experience and didactic education. Residents should be given contact information for supervising physicians in case they need assistance interpreting a lab or radiology study. Additionally, residents should be educated about creating a follow-up system. Often we rely heavily on the EHR to notify us when results come back. However, many physicians and clinics have a redundant system or patient lists to help them keep track of results.
- **Clinical skills and procedures:** Incoming residents will have a wide variety of experiences with common outpatient procedures. For example, some residents may feel comfortable performing a pelvic exam, PAP smear, and wet prep, whereas other residents may have limited experience. These procedures will need to be supervised, at least initially, in the resident’s training. The residents should be encouraged to log all procedures that they perform with the attending. Multiple videos are available online demonstrating these common procedures. The New England Journal of Medicine has videos about incision and drainage, ankle-brachial index assessment, and many others. Models can be used for simulation of various procedures.
- **Precepting patients:** The patient presentation to the attending is a critical component to the patient encounter. These presentations need to be simultaneously efficient and cover all important information. Reisman et al. described the eight tips for presenting patients in an academic primary care clinic (Table 3) [3]. These tips, adapted to the local environment, will likely be helpful for residents.
- **Other procedures that residents may encounter:** For these topics, covering during orientation may not be high-yield, but information should be available for the resident when they encounter one of these issues.
  - Durable medical equipment (DME) prescriptions
  - Home health and “face-to-face” forms
  - Jury duty letters
  - Utility letters
  - Handicap placards

**Table 3** Tips for presenting patients

Provide a preamble	Brief overview to orient attending to patient case. Example: “This is a patient who may need hospital admission”
Appreciate the difference between the case presentation and the written note	The note should contain the SOAP structure. The presentation may be more conversational
Preceptors will have different styles	Attendings may prefer a more structured presentation, some may interrupt frequently, or some may listen to the whole presentation, and then ask questions
Ask for bedside precepting	Presenting directly in front of the patient adds to patient centered care, can save time, and ensures that the patient’s story is correct
Don’t look at your notes while presenting	The HPI should be told from memory, while medications and labs results can be referred to on paper notes and/or on EHR
Ask for feedback	If there is a particular area of feedback, tell that to the attending prior to the presentation
Ask for explanation	Request guidelines or articles from the attending, especially if it’s a new topic to enhance understanding of the clinical decision-making
Communicate with other team members	Tell others about significant issues and request being alerted to information about shared patients

## Resources for Residents

- **Clinic Handbooks or Manuals:** Provides a written description of the clinic and all information covered here.
  - Strengths
    - Depending on needs of residents, can be very in-depth or more high-yield
    - Can be accessible from a residency website
    - Can include pictures and descriptions to create standard work
    - Can include clinic policies and procedures
  - Limitations
    - Must be updated on yearly basis
    - Often not read by residents
- **Website:** A clinic website can provide updated information throughout the year.
  - Strengths
    - Place to store PowerPoints, schedules, manuals
  - Limitations
    - Need administrator to update
    - May want some of the information on a password-protected part of the website
    - Need internet

- **Plan for Updates:** The orientation materials should be updated at least yearly. This process should include a multidisciplinary team including clinic leadership, nursing, current residents, and support staff. An “important updates” can be added to the orientation materials annually to highlight changes from previous years for current residents and attendings.

## **Attending Orientation**

New clinic attendings will similarly need a comprehensive orientation to clinic. Some of the orientation requirements will depend on if the attending is a recent graduate who may need detailed information about medical billing, or if they are new to the healthcare system, then they will need information about the EHR and workflow. Some of the information may be covered for attendings through other orientations they are required to attend by the health system or department. Clinic specific topics that may be worthwhile to include for attendings are:

- **General information**
  - When to arrive and where to go
  - Typical number of patients staffed per session
  - Guidelines for using primary care exception versus when patients must be seen by attending
  - Expectations for following up on laboratory, imaging, and referral information
  - Resident assignments for attendings
- **Evaluations**
  - Which residents will need to be evaluated
  - How evaluations are completed
  - How residents evaluate attendings
- **Billing and coding**
  - Use of primary care exception
  - Process for coding
  - Key drivers for coding specificity

## **Conclusion**

Given the new influx of residents each year, maintaining an organized system and outlining a thorough orientation process are keys to an efficient clinic system and aiding resident transition. While each academic clinic will have different requirements and needs, this outline should provide a basic checklist and starting point for the clinic orientation process.

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# Chapter 7

## Evaluation and Milestones in Continuity Clinic



Jillian S. Catalanotti and Parvinder Sheena Khurana

### Introduction

As of 2013, the Accreditation Council for Graduate Medical Education (ACGME) requires that residency programs have clinical competency committees that assess resident performance semiannually [1]. Residency programs may take this opportunity to redesign their end-of-rotation evaluation tools, including those used to evaluate resident performance in continuity clinic. Continuity clinic offers several opportunities for assessment, including longitudinal assessment of patient care skills, direct observation of clinical encounters, 360 ° evaluations from multidisciplinary team members, and evaluation of basic procedural competency. Several sample evaluation tools are publicly available, and online evaluation programs can assist in correlating and aggregating responses from individual evaluation forms.

### Learning Objectives

1. To describe the Accreditation Council for Graduate Medical Education (ACGME) requirement for clinical competency committees to assess resident achievement in specific subcompetencies as defined by milestones.
2. To discuss opportunities and approaches to evaluate residents in continuity clinic.
3. To design meaningful evaluation tools that can be used by clinical competency committees.

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## Outline

- Overview of the ACGME milestones
- Evaluation methods and sample evaluation tools
- Evaluating observed patient encounters
- 360 ° evaluations
- Evaluation of procedural competency in clinic

## Clinical Competency Committees and Milestone Evaluation

Since 2013, the Accreditation Council for Graduate Medical Education (ACGME) has required all residency programs to have clinical competency committees (CCCs) consisting of a minimum of three faculty members who review each resident's evaluations and discuss their progress at least twice per year. Although the ACGME still requires that residents be evaluated in the six main competency domains (medical knowledge, patient care and procedural skills, interpersonal and communication skills, practice-based learning and improvement, systems-based practice, and professionalism), Internal Medicine CCCs must now assess resident achievement on each of 22 subcompetencies within those domains using descriptors called milestones [1]. Milestones are intended to be specific outcomes through which trainees demonstrate progress from the beginning to the end of training. See Fig. 1 for an example of a subcompetency and its component milestones. Each specialty field has its own specific set of subcompetencies and milestones.

Residency programs must report milestone assessments for each resident to the ACGME semiannually. Milestones are also reported at the end of each academic year to the American Board of Internal Medicine (ABIM) and at the end of training to the fellowship programs to which graduates have matched.

Residents are expected to demonstrate progress by achieving successive milestones until the achievement of competence for independent practice ("4") in each domain. Residents do not need to achieve a score of 4 in every subcompetency in order to graduate from residency. Currently, milestone information is reported to the ACGME for data collection purposes; however, in the future, the ACGME may use this information to create national standards.

Continuity clinic provides an excellent opportunity to evaluate residents in the achievement of all six ACGME competency areas. Because residents are required to follow a panel of patients, continuity clinic may be one of the best venues for evaluating practice-based learning and improvement. Clinic preceptors can assess residents' skills in systems-based practice as residents become increasingly familiar with clinic workflows, learn to work with other members of the clinic's multidisciplinary care team, and assist their clinic patients in transitions between in- and out-patient care. Due to the years-long nature of their supervising relationship, as opposed to typical month-long rotations, continuity clinic preceptors are uniquely situated for longitudinal evaluation of residents and can observe progressive achievement of the ACGME milestones or lack thereof.

5. Requests and provides consultative care. (PC5)				
Critical Deficiencies			Ready for unsupervised practice	Aspirational
Is unresponsive to questions or concerns of others when acting as a consultant or utilizing consultant services  Unwilling to utilize consultant services when appropriate for patient care	Inconsistently manages patients as a consultant to other physicians/health care teams  Inconsistently applies risk assessment principles to patients while acting as a consultant  Inconsistently formulates a clinical question for a consultant to address	Provides consultation services for patients with clinical problems requiring basic risk assessment  Asks meaningful clinical questions that guide the input of consultants	Provides consultation services for patients with basic and complex clinical problems requiring detailed risk assessment  Appropriately weighs recommendations from consultants in order to effectively manage patient care	Switches between the role of consultant and primary physics with ease  Provides consultation services for patients with very complex clinical problems requiring extensive risk assessment  Manages discordant recommendations from multiple consultants
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Comments:				

**Fig. 1** One of the patient care subcompetencies (PC5), as it appears in *The Internal Medicine Milestone Project* [1]. Reproduced with permission of the ACGME and American Board of Internal Medicine (ABIM)

### Continuity Clinic Evaluation Tools

The new CCC and milestone reporting requirements have prompted many residency programs to redesign resident evaluation tools with this end in mind, most commonly by “mapping” each question on end-of-rotation evaluation forms to pertinent subcompetencies and using a 1–5 scale that mimics milestone levels. As evaluators, this scale requires faculty to compare resident performance to that of a fully competent provider (1 = critical deficiency, 2 = an early learner who needs direct supervision, 3 = an advancing learner who needs indirect supervision, 4 = ready for independent practice, 5 = aspirational), rather than comparing residents to other trainees at their training level. This reset scale may not be intuitive to faculty members or to residents and requires both faculty development and resident education to recalibrate expectations. For example, faculty who may be accustomed to giving “5 out of 5” to a high-performing intern will need to adjust to the new scale, on which an intern who is meeting expectations may earn a score of 2 or 3. Similarly, residents who have grown accustomed to earning the highest possible scores may find a scale comparing them to a fully competent provider, rather than to their peers, jarring.

Faculty may not have adequate information to evaluate residents on each of the 22 subcompetencies during every rotation; however, “mapping” questions from evaluations on a variety of rotations can create a full picture of performance (see Table 1).

Many online evaluation programs (e.g., MedHub, New Innovations, E\*Value, MyEvaluations, and others) have the ability to map discrete evaluation questions to a central milestone document, pulling together information needed by the CCC in an easy-to-use format. Some residency programs choose not to map their evaluation

**Table 1** Sample evaluation questions on a continuity clinic evaluation and ACGME internal medicine subcompetencies to which their responses may be mapped

Questions on end-of-rotation evaluation:	Subcompetencies to which responses “map”:
Perform appropriate assessment and management of chronic health problems	PC2, PC3, MK1, MK2, SBP3
Perform an appropriately focused history and exam to evaluate an urgent health problem in an ambulatory patient	PC1, MK1
Incorporate feedback to improve performance	PBLI1, PBLI3

Subcompetencies are abbreviated by the ACGME with their parent competency and a number. *PC* patient care and procedural skills, *MK* medical knowledge, *PBLI* practice-based learning and improvement, *SBP* systems-based practice

questions to milestones in this way; instead, individual evaluations may be read and discussed by the CCC, which then assigns an appropriate milestone level of achievement for each subcompetency in a more general fashion. Using the former method produces an average score and/or range for each subcompetency and can streamline CCC discussions but relies on faculty development to appropriately calibrate all raters in order for meaningful averages to be produced from end-of-rotation evaluation documents. Using the latter method may require closer CCC faculty reading of each evaluation, which can be time consuming; however, it allows for the CCC to translate a broader range of numerical scores on evaluations to the appropriate text description of each milestone outcome. In practice, residency programs may choose to use a combination of these methods to best balance the spirit of the Milestone Project with the reality of time constraints for programs with many trainees.

There is no “best” way to construct or time clinic evaluation tools. Evaluations should meet your program’s learning objectives for continuity clinic and should ask questions that preceptors can reasonably be expected to observe. The Association of Academic Internal Medicine (AAIM) recently established an online peer-reviewed, curated milestone evaluation exhibit with publicly available evaluations organized by program size, setting, and rotation or clinical area of use [2]. Additionally, some online evaluation programs, such as MedHub, allow for administrators to import evaluation forms from other residency programs within or outside of one’s own institution.

Timing of clinic evaluations may vary with the degree of the longitudinal relationship between preceptor-resident, faculty willingness to fill out multiple or frequent evaluations, and level of detail of the questions asked. Some programs may have preceptors fill out clinic evaluations of residents monthly; others may take advantage of the longitudinal nature of continuity clinic to have preceptors fill out evaluation forms quarterly or biannually.

See Fig. 2 for a sample continuity clinic evaluation form from The George Washington University. This form is filled out twice per year by each clinic preceptor using a five-point scale.

Please complete the following evaluation of a sample of skills that should be learned during this resident's continuity clinic. For each skill, please choose the level of entrustment you have for the resident. At what level of supervision do you TRUST the resident to do the particular skill?

<b>Level 1:</b>	Resident cannot perform this skill even with assistance
<b>Level 2:</b>	Resident should perform this skill under direct supervision of a senior resident or fellow
<b>Level 3:</b>	Resident can perform this skill under indirect supervision of the attending
<b>Level 4:</b>	Resident can perform this skill independently
<b>Level 5:</b>	Resident can act as an instructor or supervisor for this skill (aspirational)
<b>N/O:</b>	Not observed

Most interns will start at a Level 2 and progress to a Level 3 on most measures by the end of the PGY-1 year. Most PGY2/3 residents will progress from Level 3 to Level 4 on most measures by the end of their residency. Please reserve level 5 for skills they perform at a truly aspirational level. If you did not observe the resident performing a specific skill, please mark "Not Observed".

PLEASE BE LIBERAL WITH COMMENTS, AS THEY ARE VERY HELPFUL!

1. Follow age appropriate preventive medicine guidelines. (PC3, MK1, MK2, SBP3)
2. Perform an appropriately focused history and exam to evaluate an urgent health problem in an ambulatory patient (PC1, MK1)
3. Generate a reasonable differential diagnosis, diagnostic strategy and therapeutic plan for a clinic patient with an urgent health problem. (PC2, PC3, MK1, MK2)
4. Perform appropriate assessment and management of chronic health problems. (PC2, PC3, MK1, MK2, SBP3)
5. Adhere to clinical treatment guidelines (e.g. JNC VIII, NCEP, etc.) (PC3, MK1, MK2, SBP3, PBLI4)
6. Minimize unnecessary diagnostic and therapeutic tests and incorporate cost-awareness principles into decision-making. (SBP3)
7. Recognize when to refer a patient to a specialist. (PC2, PC3, PC5, MK1, SBP1)
8. Engage a patient in advanced care planning. (PC2, PROF1, ICS1)
9. Write notes that are complete, accurate, and organized, and are done in a timely manner. (PROF2, PROF4, ICS3)
10. Perform comprehensive medication review and reconciliation. (SBP 4, ICS3)

**Fig. 2** Sample continuity clinic evaluation tool from The George Washington University Internal Medicine Residency Program. Abbreviations in parentheses after each question signify the ACGME subcompetencies to which each question is mapped. *PC* patient care and procedural skills, *MK* medical knowledge, *ICS* interpersonal and communication skills, *PBLI* practice-based learning and improvement, *SBP* systems-based practice, *PROF* professionalism

11. Manage time effectively during patient care. (PC3, PROF2)
12. Provide timely result notification and follow up care by the most appropriate method (letter/phone/patient portal) with appropriate documentation. (PROF2, ICS1, ICS3)
13. Treat patients with dignity and respect, demonstrate empathy, as well as a commitment to relieve pain and suffering. (PROF1, PROF4, ICS1)
14. Identify barriers and customize care for patients with language, cognitive, functional, or cultural barriers to care, e.g. patients with hearing impairment, dementia, language barriers, socioeconomic needs, etc. (PROF1, PROF3, ICS1)
15. Value the concept of continuity of care and establish sound longitudinal relationships with patients, e.g. schedule patients for follow up with themselves as PCP, communicate with patients in between visits as needed, etc. (SBP1, SBP4, PROF1, PROF2, ICS2)
16. Demonstrate his/her role as a patient advocate within the health care system, e.g. utilizes the services of social worker and other ancillary staff to advocate for patient needs, contacts the insurance company when a recommendation is rejected, etc. (SBP1, SBP4, PROF3, PROF4, ICS2)
17. Coordinate care with patients' other health providers, e.g. when seeing other provider's patients, he/she notifies PCP of plan, follows through on specialist recommendations, etc. (PC2, PC3, PC5, PROF1, ICS2)
18. Interact effectively with clinic nursing and administrative staff. (PROF1, ICS2).
19. Identify areas of knowledge deficit and develop strategies for self-improvement. (PBLI1, PBLI4)
20. Incorporate feedback to improve performance. (PBLI1, PBLI3)
21. Actively participate in clinic conferences like journal club, board reviews, QI curriculum and academic half day. (PBLI2, PROF2)
22. Comments (Mandatory):
23. **\*\*OVERALL PERFORMANCE RELATIVE TO LEVEL OF TRAINING: \*\***  
**NOT A MILESTONE - THIS IS COMPARED TO YOUR EXPECTATION OF A PGY AT THIS LEVEL!**
  - Inadequate Performance/Significant Deficiencies
  - Below Expectations for level of training
  - Expected Performance for level of training
  - Consistently Performs Above Expectations for level of training
  - Exceptional Performance for level of training

**Fig. 2** (continued)

## Evaluating Observed Patient Encounters

The ACGME Residency Review Committee for Internal Medicine (RRC-IM) requires that assessment of resident competence in patient care “must involve direct observation of resident-patient encounters” [3]. These are most commonly referred to as mini-clinical exercises or Mini-CEXs. Direct observation and timely feedback are irreplaceable learning opportunities for residents and can be eye-opening for clinical faculty in assessing resident skills in history-taking, physical examination, procedures, and patients education or counseling.

Integrating direct observation into the busy clinic setting can be challenging. Brainstorming with your clinic faculty and staff may reveal best methods for your individual practice. For example, some clinics may choose to stagger resident appointment slots to avoid a backup in the precepting line when directly observing patient education at the end of an encounter. Others may set a standard wherein each preceptor directly observes one resident’s first history of the day, which typically occurs before preceptors are pulled by other learners or competing needs. It is important to note that time spent observing in Mini-CEXs need not exceed a few minutes; brief observations often reveal enough substance to generate both reinforcing and constructive feedback for the trainee. When observing history-taking, it is helpful to tell the patient that the attending’s role is one of a “fly on the wall to observe a couple of minutes of the resident’s technique, and then quietly leave the room while their visit continues.” The most important part of the Mini-CEX is the formative feedback given to the trainee privately after observation.

Several resources are available to evaluate Mini-CEXs, including free booklets that can be ordered directly from the ABIM. Mini-CEX evaluations can be made available to the CCC as additional data points for their milestone discussions. Mini-CEX evaluation tools may be designed with milestone mapping in mind (especially to the interpersonal and communication skills or patient care subcompetencies) or may instead be an opportunity for free-text comments that may inform richer discussion by the CCC. The free ABIM evaluation tool for Mini-CEXs uses a nine-point scale that does not easily map directly to milestones; however, it is fairly straightforward and allows observers to document complexity of the encounter as well as the focus (i.e., data gathering, diagnosis, therapy, and counseling) [4].

## 360 Degree Evaluations

The RRC-IM requires that assessment of resident competence in interpersonal and communication skills must include “multi-source evaluation (including at least patients, peers and non-physician team members)” [5]. Continuity clinic presents a relatively straightforward opportunity to ask medical assistants, nurses, social workers, and/or front desk staff to evaluate resident performance. Additionally, clinic patients may provide real-time evaluations of resident communication skills, professionalism, and patient care approaches. Ideally and if properly informed, patients in resident clinic should expect to be a part of the educational process of young physicians and may appreciate the opportunity to provide input into the training of

their doctors. Because residents are assigned a panel of patients for whom they care longitudinally, clinic patients may be particularly invested in helping their residency primary care physicians improve their skills.

Although one could choose to map 360 ° evaluations to milestones, it is important to note that correct calibration of respondents generally requires extensive faculty and staff development. It is likely more feasible to use 360° evaluations, especially those filled out by patients and peers, for richer data to inform the overall CCC discussions of milestone achievement, rather than mapping raw responses directly to subcompetencies.

### Evaluation of Procedural Competency in Clinic

The ABIM requires that residents safely and competently perform five standard procedures in order to be board eligible: Pap smears, IV placement, venous blood draws, arterial blood draws, and advanced cardiac life support (ACLS). Although most of these are inpatient procedures, Pap smears occur exclusively in the outpatient setting. Current Pap smear guidelines give residents fewer opportunities to perform this procedure so programs must be mindful of documenting and evaluating resident Pap smears in the outpatient setting, especially in continuity clinic.

All continuity clinic preceptors should be prepared to supervise and, if needed, perform Pap smears. Faculty members who are not competent to do so may either be instructed and precepted by colleagues until they are themselves deemed competent, or may directly “swap” precepting responsibilities such that another preceptor in clinic supervises their trainees’ Pap smears while they precept one of that colleague’s residents on another case. If the latter method is used rather than requiring all faculty to precept their own Pap smears, caution should be exercised to create a culture of real-time swapping of precepting responsibilities in order to maintain efficient clinic flow. Programs may choose to mirror milestone language (patient care #4 subcompetency: “skill in performing procedures”) in written evaluations of Pap smear performance, thereby ensuring an easily “mappable” data point for CCCs (see Fig. 3).

4. Skill in performing procedures. (PC4)				
Critical Deficiencies			Ready for unsupervised practice	Aspirational
Attempts to perform procedure without sufficient technical skill or supervision  Unwilling to perform procedures when qualified and necessary for patient care	Possesses insufficient technical skill for safe completion of common procedures	Possesses basic technical skill for the completion of some common procedures	Possesses technical skill and has successfully performed all procedures required for certification	Maximizes patient comfort and safety when performing procedures  Seeks to independently perform additional procedures (beyond those required for certification) that are anticipated for future practice  Teaches and supervises the performance of procedures by junior members of the team
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				

**Fig. 3** The fourth patient care subcompetency (PC4), which focuses on procedural skills, as it appears in *The Internal Medicine Milestone Project* [1]. Reproduced with permission of the ACGME and American Board of Internal Medicine (ABIM)

## Conclusion

Continuity clinic presents an opportunity for thorough evaluation of resident performance in each of the ACGME competency areas. Continuity clinic directors should discuss expectations for evaluation of residents with their residency program directors so that they can design and implement evaluation forms to maximize usability for preceptors, other evaluators, and the CCC. Publicly available and peer-reviewed evaluation forms exist that may meet the needs of continuity clinic directors and may enable one to avoid reinventing the wheel [2]. If desired, several online evaluation systems, such as MedHub, New Innovations, E\*Value, MyEvaluations, and others, can facilitate mapping of individual evaluation questions to subcompetencies to generate averages for milestone achievement.

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# Chapter 8

## Nurturing a Culture of Diversity and Inclusion in Resident Clinic



Inginia Genao and Laura Whitman

### Introduction

The racial and ethnic makeup of the US population is increasingly diverse. In 2015, the demographic breakdown was 73% Caucasian, 17.6% Hispanic/Latino, 12.7% African-American, 5.4% Asian, 0.8% American Indian and Alaskan Native, and 0.2% Native Hawaiian or other Pacific Islander [1]. The same degree of diversity is not reflected within the physician workforce. For example, the percentage of under-represented minority (URM) faculty by race and ethnicity in US medical schools accounts for only 4% Hispanic/Latino, 2.9% Black or African-American, 0.1% American Indian or Alaskan Native, and 0.1% Native Hawaiian or other Pacific Islander [2]. In 2011, it was reported by the Association of American Medical Colleges (AAMC) that only 8.5% of medical school matriculants were Hispanic/Latino and 6.1% were African-American, and thus the lack of diversity within the physician workforce is not expected to significantly change in the near future [3]. There is a vast literature focusing on the discrepancy between the burgeoning minority population and their underrepresentation in medical education. Different branches of this literature sheds light on the needs of patients in contexts such as the physician-patient relationship, the growing need for cultural competence, and the importance of communication skills and a high level of professionalism. It is only in the last few years that healthcare organizations and the academe, in addition to promoting pipeline efforts, are paying growing attention to diversity and inclusion in the workforce. It is arguable that the demographic incongruity between providers and patients is most conspicuous in the clinics staffed by medical residents. Patients receiving

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primary care in university resident clinics tend to be underrepresented minorities (URM) and/or socioeconomically disadvantaged [4]. It is therefore imperative that in addition to cultural competence training provided to physicians, special attention should be given to diversity and inclusion in the setting of the resident clinic. This chapter provides guidance to residency program and resident clinic leadership on how to foster a culture of diversity and inclusion in the setting of resident clinic.

## Learning Objectives

1. Foster a culture of diversity and inclusion in the resident clinic setting.
2. Attract, recruit, and retain a diverse workforce.
3. Better familiarize faculty/trainees with the communities they serve.
4. Strengthen interprofessional skills through cultural competence training.

## Outline

- Expanded welcoming comments
- Engagement and beyond
  - Recruitment and retention efforts to diversify the workforce
  - Goal: A climate conducive to members appreciating each other at a cultural and social level
    - An environment that welcomes the sharing of cultural information
    - The blending of continuing education with social activities
    - The ongoing engagement of clinical and nonclinical staff
- Definition of community beyond simple demographics
  - Community health needs assessment
  - Internal and external resources to address the needs of the community
  - Participation in community projects
- Cultural competence training for all clinic members
  - Can relate and understand one another and our patients
  - Understand patients' health-seeking behaviors and adherence to care

## Expanded Welcoming Comments

From the little that is actually known about effective recruitment and retention of minority residents, it appears that a counterproductive experience for minority physicians at all levels is that of social isolation [5, 6]. Given the enormous amount of content competing for coverage during orientation, dedicating any

portion of this precious time to highlight the institution's appreciation for diversity and a spirit of inclusivity sends a very powerful message. Simple, short introductions wherein residents and faculty introduce themselves and provide a two- or three-sentence summary of their background and their interests are an excellent way to jumpstart networking within a class and help interns to quickly identify potential mentors. For those who belong to a Minority Housestaff Organization (MHO) or similar group, social events during orientation are an effective way to counteract the sense of "outsider" that many URM physicians feel. Having an MHO also goes a long way toward highlighting the priority that an institution and its members place on supporting diversity. We will briefly focus on Yale's own MHO as a case study. This organization's stated goal is to promote mentorship, community outreach, and networking/social events. Its co-chair has stated "Our goal is to make it easier for current and future minority residents to find a community and locate the resources and support that are necessary for professional development." The MHO has accordingly sent members to national meetings, organized second look visits for minority applicants, and sponsored events such as Minority Men in Medicine. The latter was a social outing for URM residents with a lively fusion of soul food and the 1990s rhythm and blues (R and B) music.

There are several much-needed strengths that URM residents bring to our community. In addition to a heartfelt appreciation for the ethnic diversity of patients and providers, they frequently feel drawn to provide service to the indigent. They also bolster an environment that is at once welcoming and supportive of minorities [7]. In the authors' experience, active appreciation for the diversity of patients and provision of service to the medically indigent are not typically emphasized enough within residency training programs. A starting point is focusing on the prevention of social isolation, emphasizing support, and instilling a strong sense of welcome in the program's efforts to improve diversity. It is also known that diversity begets diversity, meaning that the conspicuous presence and promotion of existing minorities as role models and mentors is an important facet of attracting and retaining other minority physicians.

Extending a sense of welcome must begin long before trainees arrive for orientation. We must proactively court minority students rather than hoping they will simply leap over societal barriers and come to us. Strategies include the following.

## **Engagement and Beyond**

### ***Recruitment and Retention Efforts to Diversify the Workforce***

The success of residency programs depends in part on the recruitment of highly qualified leaders, teaching faculty, and medical school graduates. Having been long recognized in the industry, diversity offers many advantages to a residency program. At a personal level, school or workplace diversity can result in an increased sense of well-being, decreased levels of stress, and the development of genuine respect

between colleagues of differing backgrounds [8, 9]. At the program level, a diversified workforce increases productivity and offers a competitive advantage to the recruitment of diversely talented individuals and helps to sustain a pipeline attracting and retaining future fellows and faculty and potentially increasing the physician workforce in the community [10–13]. Studies have shown that physicians from URM groups are more likely to care for patients similar to their own ethnic background and to provide for the underserved patient population [14–17]. Furthermore, ethnic minority patients are more likely to experience greater satisfaction when cared for by an ethnic minority physician, resulting in higher likelihood of satisfaction for the physician [14]. Consequently, it behooves residency programs to actively promote the recruitment of URM and to sustain an increased proportion of women, the latter comprising over 30% of the physician workforce as reported in 2014 [18]. Because there is intense competition for the small numbers of highly qualified URM medical students, it is critical that the leadership and teaching faculty of residency programs understand how URM and female medical students go about choosing a program of residency in internal medicine. A study published in 2005 looked at factors medical students consider when choosing a residency program and how such factors differ by gender and ethnicity [7]. That study suggested that the decision of URM medical students is positively influenced by a greater degree of diversity among the faculty, residents, patients, and city. The study also demonstrated that in addition to diversity, medical students also appreciate a supportive academic and political environment and the feeling of being wanted by the program. When selecting a residency program, women also valued gender diversity, availability of family-oriented programs, and active discussion regarding potential opportunities for their partners.

Recruitment and retention of a diversified workforce, especially in a resident clinic caring for an underserved patient population with limited resources, require a solid infrastructure and supportive environment. That same setting must allow faculty members to achieve productive academic careers and to maintain a healthy work-life balance. This is important for many obvious reasons. Not the least of these is that trainees view the faculty as role models, and this perception can influence the trainees' career choices and whether they remain at the institution of their training.

Given that the current number of qualified URM individuals in medicine is small, long-term investment in pipeline programs is also very important. These programs should begin at high school or earlier by exposing the young students to healthcare role models they can relate to. It is also important to involve the parents and guardians to ensure students are supported in their aspirations. Other examples include mentoring programs during college and post-baccalaureate programs [19]. These efforts bring minority candidates into the academic fold of the medical school with the increased likelihood of retaining them there for residency. The author describes a program to recruit students to her medical school at the University of Kentucky. Many of the program components could be generalized to residency, notably using current minority residents and their personal contacts as a springboard for recruitment. An office of minority affairs is also needed to identify potential candidates. The candidates are invited to a 2-day recruitment event that introduces them to life

on campus. “Incorporating current medical [residents] in recruitment programming allows institutions to access a knowledgeable and inspirational resource that is readily available” [19]. This allows the candidate to picture themselves as a member of the community, guarantees contacts should they choose to matriculate, and allows the hosts to serve as role models of successful young physicians.

### ***Goal: A Climate Conducive to Members Appreciating Each Other at a Cultural and Social Level***

While creating a network of peers and mentors that share one’s “minority status” appears to be critical for long-term success and retention, this cannot occur in isolation. In addition to finding people with a common background, it is important to establish the value of embracing the many ways in which we are different. Because some minorities may not have an easily recognizable peer group (e.g., a lesbian Christian from Pakistan), they will need a forum that celebrates their uniqueness. This creates an atmosphere of tolerance and inquiry. One touchstone that serves as an easy starting point for sharing one’s culture is food. A regular potluck meal where people are encouraged to prepare their favorite foods is a wonderful, nonthreatening way to connect and learn some basics about another culture, with the added benefit of socializing with colleagues one might not have otherwise sought out. We hold regular potlucks at our clinic site that are attended by faculty, residents, nurses, and staff. This allows for exposure to a more varied group and has resulted in an organic appreciation for the culinary talents of others and is a powerful point of connection. More than once, a participant has gotten visibly homesick at the sight of a favorite food not seen since they left home. The reason it is called “comfort food” is readily apparent.

Our clinic attempts to create a sense of belonging through a variety of activities and structures. Every new intern is assigned to a team of three residents, one attending, one nurse, and a medical assistant. The team serves as the “home base” for each resident. One’s team defines the group you work with consistently throughout residency, which patients you care for, and more often than not, with whom you socialize with. To foster this sense of belonging, we organize friendly competitions and social events that highlight the team concept. On the first day of clinic orientation, at a “welcome” ice cream social, the interns are given a colored shirt that makes it clear which group they belong to. They join their group and get vulnerable patient sign-out. The chief residents organize a “clinic jeopardy” and a clinic scavenger hunt that put the teams in competition and create a bonding experience. The games themselves help the interns get comfortable navigating around the clinic and allow them to meet and learn “fun facts” about those who work there. Our “proof of success” is that it has become the norm for the residents on each team to arrange a group outing (pizza, salsa dancing, and indie movie night) at the end of each 2-week rotation that often involve faculty and clinic staff.

## Definition of Community Beyond Simple Demographics

- (a) Community health needs assessment
- (b) Internal and external resources to address the needs of the community
- (c) Participation in community projects

Trainees should be acquainted with much more than the basic demographics of their patients' community for a better understanding and sense of belonging with the patients they serve. The introduction should include a neighborhood-guided tour by someone well versed in the community, the ideal being someone that has undergone a community resident leadership program where they have learned about the mapping of community assets (a focus on the community strengths rather than on needs as developed by John Kretzmann and John McKnight) [20]. Trainees can be made aware of any community distrust of the healthcare system or home institution and its rationale, as well as common health-seeking behaviors and barriers to healthcare as perceived by the community. Home visit programs are another way for trainees to become closer to the community they serve, in addition to the specific healthcare needs of the patients. Certain not-for-profit organizations are required to conduct community health needs assessment (CHNA) and to design strategic plans to address the health needs of the community [21]. It is essential to inform faculty, trainees, and staff of pertinent CHNA results and engage them in the organization's strategic plans to address those needs.

Increasing numbers of healthcare organizations include patients and family members in hospital and ambulatory center committees [22, 23]. Similarly, trainees and faculty should be present on these committees since this is an excellent opportunity for them to hear directly from the patient or family member about important issues that may be afflicting their community. Moreover, these individuals can inform the institutional committee members of opportunities within the community where trainees and faculty could play a constructive role. Examples include community projects, social justice organizations, and functions that are purely social in nature. Reading the local newspaper, listening to community radio, and eating at local restaurants are worthwhile ways to learn all about what the community offers. In order to make this possible for both trainees and faculty, it is absolutely critical to incorporate dedicated time for these types of activities and for the educational experience in the resident clinic not to be secondary to the inpatient service.

## Cultural Competence Training for All Clinic Members: Ability to Relate and Understand One Another and Our Patients

Intern orientation is usually an exciting and overwhelming experience, a time chock full of pragmatic topics to help them be as ready as possible to start residency. Although interns may be mostly focused on the operational and clinical aspects of that first rotation, resident clinic is a longitudinal experience. In short order, many

interns yearn for a sense of belonging and for someone they can relate to. This is especially important for URM individuals to help prevent social isolation and to vent and share their experiences with both implicit and non-implicit bias, such as being mistakenly taken as someone from housecleaning rather than as a doctor.

A vast amount of the literature on cultural competence in healthcare addresses the physician-patient relationship. It is important to ensure that health professionals are culturally competent with a focus on interprofessional relationships. The ability to relate to and understand one another involves getting to know more about each other than just a familiarity with our training, extra credentials, and academic accomplishments. The cultural introduction needs to be a story of what truly matters to us as a person—personal values, family, and traditions. There needs to be a space for this to occur, and appropriate opportunities must be created wherein individuals can interact socially and share their stories. Sharing stories is an effective way to communicate something meaningful in our lives, a way to eliminate bias, and a means of introducing conversation that might not otherwise be comfortably broached, such as the preconceived assumptions. Regardless of ethnic background each of us has, a culture and cultural competence is not an issue exclusive to URMs. To some degree, all interactions are intercultural regardless of ethnicity. Even when we come from similar backgrounds, our individual experiences influence our experience of cultural beliefs and behaviors. As we consider the creation of a cultural environment that embraces inclusivity, it is important to define diversity broadly so as to include URM, gender, sexual orientation, sexual identity, religion, disability, foreign graduates, and even graduates from different regions within the United States.

Cultural diversity is becoming increasingly important in multiple domains of our lives—in our family unit, at social functions, and in the workplace. It is not only the patients we serve who are diverse, but we providers are also diverse and not necessarily concordant with our patients. For this reason, training in cultural competence is crucial for creating an environment where we acknowledge our differences, where we help each other feel welcome and free to be ourselves, and where we facilitate culturally respectful conversations to better understand our differences. The Liaison Committee on Medical Education introduced standards on cultural competence in 2000, which are now in use at many medical schools [24]. There is also a tool called Tool for Assessing Cultural Competence Training (TACCT) [25] developed by the AAMC and a resource guide listing resources and guidelines for the teaching of cultural competence [26].

Many academic institutions may have diversity and inclusion committees cloistered within their departments, but an effective committee needs to be part of the larger mission and vision of the organization and not a committee in isolation. It requires the commitment of the organization's leadership which includes a clear message to the faculty, trainees, and staff that the committee is intended to innovate and create change. Committee members need to include stakeholders such as the department chair, education vice-chair, diversity officer, designated institutional official, division chiefs, residency program directors, fellowship directors, medical directors, faculty, residents, medical students, and staff members. It needs to meet at a regular frequency and have financial and administrative support to operationalize and accomplish its goals.

## Conclusion

Given the acute cultural discordance between the faculty, residents, patients, and communities they serve in the resident clinic, it is critical that we cultivate a culture of inclusive diversity which makes everyone feel welcome and promotes a sense of belonging and academic success that is attractive to others. It is important to emphasize that providing healthcare in the environment of the resident clinic can be challenging for several reasons such as discontinuity of care, disenfranchised patient population, and limited access to resources. Acquaintance with community helps to alleviate these challenges by instilling a compassionate understanding of community needs and a prioritized approach to addressing those needs. In addition, ongoing training in cultural competence can potentially help decrease misunderstanding and bias. A diversified workforce alone will not resolve all tension because, as unique individuals, each person functions in accordance with his or her individual culture. As Dr. Adela Allen said, "*We should acknowledge differences, we should greet differences, until difference makes no difference anymore*" [27].

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**Part III**  
**Academic and Clinical Workflows**

# Chapter 9

## Traditional and Block Scheduling Challenges and Solutions for Internal Medicine Residents



William Weppner, Craig Noronha, and Mamta (Mimi) K. Singh

### Introduction

In 2009, the Accreditation Council for Graduate Medical Education (ACGME) updated requirements for internal medicine residencies which included increasing ambulatory continuity clinic time [1]. The ACGME requires that each resident complete at least 130 half-day sessions in a continuity clinic to allow for longitudinal patient care. There is also a requirement that each resident's longitudinal clinical experience should not be interrupted by more than 1 month, excluding vacation time. The ACGME specifically asked programs to minimize the conflicting clinical responsibilities between inpatient and outpatient care that was inherent in the traditional (half-day per week) clinic schedule model. This recommendation was supported by program directors [2] and continuity clinic directors [3] and preserved in the 2016 update of ACGME Program Requirements [1]. This development led several programs to innovate the

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scheduling of ambulatory continuity clinics. Such examples are the creation of the ambulatory long block and “X + Y model” schedules [4–7]. Over the past decade, more programs have converted to X + Y scheduling models, in which an X number of weeks of non-clinic are combined with Y number of clinic weeks in a repeating sequence. Based on the 2015 Association of Program Directors Annual Survey, 44% of all responding programs have converted to X + Y Schedule. In this chapter, we will review the different scheduling models, discuss the advantages and disadvantages of different scheduling options, and review the current evidence for each scheduling model.

## Learning Objectives

1. Review scheduling models used in internal medicine residency programs.
2. Outline current evidence regarding impact of different scheduling models.
3. Compare the benefits and barriers of different scheduling models.

## Outline

- Types of scheduling methods:
  - Traditional—half-day per week
  - X + Y Clinic Model
  - Immersion block and Ambulatory long blocks
  - Novel approaches
- Evidence of impact
  - Continuity
  - Access
  - Satisfaction
  - Primary care interest
  - Clinical outcomes
- Accreditation Council for Graduate Medical Education (ACGME) requirements for clinics
  - Time spent—number of clinics per year, number of months in residency
  - Number of weeks between clinics
- Benefits
  - Didactic impact
  - Immersion effect

- Barriers
  - Scheduling with affiliates
  - Discontinuous ward time with attendings
  - Coverage strategies when trainees on other rotations

## **Types of Scheduling Models**

There are four major models of scheduling in residency programs:

1. Traditional half-day clinic scheduling
2. The X + Y model
3. Ambulatory long block
4. Hybrid models

Transitioning to different schedule models within a residency program are complex processes that involve faculty and staff in both the inpatient and outpatient arenas. Thus, programs must carefully weigh the pros and cons for each of the scheduling models to determine what is best in each institution. The authors recommend spending at least a year planning any major schedule changes prior to initiation of a new model, based on our experience with schedule transitions.

### ***Traditional Scheduling***

In a traditional scheduling model, residents are scheduled for one half-day of continuity clinic per week throughout their residency. Residents are expected to hand off their inpatient duties to a covering resident or nonresident provider on the particular half-day of their continuity clinic each week. Certain rotations and call schedules may dictate that the resident returns to their inpatient duties after the clinic session. Invariably, there will be scheduling issues that cannot be reconciled leading to clinic cancelations. The most common issues include cancelations of clinic if the resident is post-call, in an intensive care unit rotation, or possibly on call where they are expected to be admitting patients in the hospital in the afternoon. Other examples include rotations such as night float or away rotations where the resident is in another country.

Inherent in this model is a conflict between the inpatient and outpatient settings [8]. A resident may be caring for a sick inpatient and feel pressure to leave for clinic to see his or her scheduled patients. Similarly, the resident may feel pressure to leave clinic quickly if they are expected to go back to their inpatient rotation after clinic. This typically includes travel between sites, which adds to stress and time

pressure. Residents also may run into issues with work hour restrictions, particularly if they have to stay in clinic late catching up or if they have to return to the wards to complete inpatient duties. Covering team members may have an increase in workload with the additional patient care duties, and this may increase stress on the inpatient team. Within this traditional model, some programs may call on residents to cover the inpatient duties of the clinic resident, leading to some discontinuity for the inpatient service. However, in the traditional model, the clinic may pair preceptors with residents on specific half-days, which may be beneficial for continuity between the teaching pairs. The traditional model also provides some predictability, knowing that the resident usually will be there each week.

### ***X + Y Model***

In an X + Y scheduling model, the X represents the number of continuous weeks of the nonambulatory portion of the schedule including inpatient wards, ICU rotations, night float rotations, and inpatient electives. The Y represents the number of continuous weeks in the continuity clinic and possibly other ambulatory experiences before returning to the inpatient setting. There are different versions of X + Y models such as 3 + 1, 4 + 2, 5 + 1, and 6 + 2 models. In each case, the Y portion entails a concentrated block of ambulatory clinics and ambulatory experiences. The Y can be scheduled in various ways depending on the resources available. Based on surveys and discussion at the Society of General Internal Medicine Clinic Directors Interest Group, there are typically at least four half-days of continuity clinic per week, and some programs may schedule up to eight sessions per week. Unlike the traditional model, the timing of continuity clinics can be more flexible, allowing for morning clinics and evening clinics without adversely impacting inpatient schedules or work hour restrictions.

Aside from continuity clinics, other unique or specialty clinic opportunities can be built into the ambulatory Y week. Examples include rotations through specialty clinics (e.g., rheumatology clinic), outside community and underserved clinic rotations, and even a second continuity clinic, thus improving residents' exposure to multiple ambulatory settings. Some programs have designed the subspecialty rotations such that the residents rotate through multiple specialty clinics during their residency, doing specific ambulatory blocks in each specialty. For instance, an intern may rotate through three to four different specialties and then rotate through other specialty clinics during their second and third year of residency.

Each clinic must also decide on how to schedule preceptors within this model. Some programs have utilized the traditional model where the attendings precept one to two sessions per week and attend clinic every week. This allows preceptors to meet most residents in the program from different Y weeks but also reduces the responsibility they have for any specific group of residents. A more complex scheduling model is to have the preceptors rotate on the same schedule as the residents. For example, in a 3 + 1 system, the attendings would have their usual continuity and/or inpatient schedule for the 3 weeks or X part of the model. Then during the Y

week, they would ideally precept four or more sessions with the same group of residents. This model improves the continuity between the preceptor and resident given that at least 10% of the trainees’ residency will be with the same preceptor or preceptor group. Given these alignment needs, this type of scheduling may be more complicated for the preceptors as it may impact access for their own patients.

(See Box 1—Description of a 6 + 2 schedule.)

**Box 1 Description of a 6 + 2 Schedule**

*For each level of resident (R1, R2, R3), we instituted a “2 + 4 + 2” (or 6 + 2) schedule which consisted of 4 weeks of more intensive call months (wards/ICU/night medicine), 2 weeks of electives, and 2 weeks of ambulatory clinic. The majority of clinic half-days are concentrated in each 2-week ambulatory block (eight half-days per block), with one to two half-day clinics during the other 6 weeks.*

*This allows for 2 weeks of dedicated non-call ambulatory clinic and elective time, which serves as a “diastole” compared to the often busier-paced ward, night medicine, and ICU months. Elective time is preserved in 2-week blocks, although this can be modified to 4-week blocks for longer experiences or away rotations, as needed. It also allows the ability to integrate with a more traditional 4-week/13-block schedule that many residencies use, which can be useful for shared rotations between residency programs. Functionally, this equates to 26 individual 2-week blocks.*

**Examples of the Ambulatory Week (Y) in X + Y Model System\***

1. Mix of Continuity Clinic and Specialty Care (Residents rotate through the same specialty care clinic for three to four ambulatory blocks and rotate through major medicine subspecialties during 3 years of residency.)

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	Continuity clinic	Specialty clinic	Time off	Didactics	Specialty clinic
PM	Specialty clinic	Home visits	Virtual clinic	Specialty clinic	Continuity clinic
EVE			Continuity clinic		

2. Full Continuity Clinic Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	Continuity clinic	Continuity clinic	Continuity clinic	Academic half-day	Continuity clinic
PM	Continuity clinic	Administrative time	Continuity clinic	Continuity clinic	Administrative time

During the 2-week clinic block, approximately half the time is spent in the continuity clinic. There are three half-days of continuity clinic with two to six patient visits, depending on the resident level. The “virtual clinic” has one or two face-to-face clinic appointments, then dedicated time for telephone clinics, secure messaging, and administrative time. The other half of the ambulatory block time can be used for a flexible schedule of ambulatory electives, didactics, group visits, or panel management time. For example, during a 2-week block, the resident might rotate through eight or more affiliated clinics, including more traditional specialties such as gastroenterology, cardiology, renal, and dermatology; affiliated services may include insulin titration clinic with a clinical pharmacist, hyperlipidemia clinic, behavioral health clinics such as smoking cessation, endoscopy, physical therapy, women’s health clinic, pacemaker clinic, and podiatry, to give some examples. While this does not give trainees an “in-depth” understanding of each discipline, it offers residents exposure to the available services and resources and may improve appropriate use of referrals. It also can serve as a way to “sample” electives that residents may not be exposed to with traditional clinic scheduling systems.

Residents may have more choice during the ambulatory block to tailor their clinic sessions to see other clinics, and this may help with career choices. For example, morning clinics are possible because of lack of conflict with morning rounds seen in traditional systems. Evening clinics for patients are also possible, allowing for flexibility in administrative time during the workweek. It is also possible to schedule recurring half-day conferences during ambulatory block for didactics, quality improvement, and panel management.

Often, X + Y schedules create “cohorts” of R1/R2/R3s that tend to be together during clinic rotations, possibly the ward as well as educational sessions. This allows members from different cohorts to cross cover in the clinic while the others are away from clinic. For example, in a 3 + 1 schedule, four cohorts of resident groups are created; the residents that are in clinic can be assigned to cover three other residents that are out of clinic on wards, elective or vacation. This can be to cover their colleagues’ paperwork and faxes in clinic, extended to view alert or electronic health record notifications, and even face-to-face visits for patients with urgent issues.

### ***Ambulatory Long Block***

The “ambulatory long block” was created as part of the ACGME’s Educational Innovations Projects (EIP) in 2006 [9]. Several residency programs initially trialed the model, and other programs have adopted variations since then. In an ambulatory long block model, residents follow the traditional model of primary care clinics, with one afternoon clinic per week, and then intermittently have weeklong blocks of ambulatory experiences. Another example is the yearlong ambulatory long block where residents follow a traditional residency model with once weekly afternoon

clinics until midway through the second year of residency. At the midpoint of the second year of residency, they start a 12-month continuous ambulatory clinic schedule until the midpoint of the third year. Given that the long block spans the last 6 months of the PGY-2 and the first 6 months of the PGY-3, there will always be either second year or third year residents on the ambulatory long block throughout the academic year. The long block consists of three or more half-day clinics per week for 12 months. During the times when the residents are not in clinic, they rotate on electives and research blocks. In these ambulatory long block periods, due to an increase of the time that the resident is present in the clinic, there is often increased access for their continuity patients. The non-continuity clinic portions of the long block can be designed according to available opportunities (and programmatic needs) in both the outpatient and inpatient setting. There are typically an equal number of residents on the ambulatory long block throughout the academic year, and there is ideally little or no fluctuation in preceptor needs.

PGY-1	PGY-2 July 1– December 31	PGY-2 January 1–June 30	PGY-3 July 1– December 31	PGY-3 January 1–June 30
Traditional resident schedule	Traditional resident schedule	Ambulatory long block • 3 half-day clinics per week		Traditional resident schedule

(See Box 2—Description of a 12 + 12 schedule.)

**Box 2 Description of a 12 + 12 Schedule**

***Description of “12 + 12” week block immersion model:***

*The Cleveland VA Medical Center’s Transforming Outpatient Care – Center of Excellence in Primary Care Education implemented a block immersion model at the program’s onset. Each 12-week block of outpatient experience alternates with a 12-week inpatient experience. Internal medicine residents have one block in postgraduate year 1 (PGY-1), two blocks in PGY-2, and one block in PGY-3. The residents do not have continuity clinic when assigned to inpatient experiences.*

*Cleveland was granted an Accreditation Council for Graduate Medical Education (ACGME) waiver to allow for 12-week absences from continuity clinic. Residents in this practice partnership model are assigned a panel of patients together over 3 years. Each resident pair shares an assigned IM faculty member who provides oversight and supervision. While on the 12-week ambulatory rotation, residents do three half-days of primary care, one half-day of geriatrics or women’s health, two half-days of urgent care, 1 day of elective rotation in a subspecialty clinic, one half-day of self-directed learning, one half-day of panel management, and one half-day of didactic lectures in an interprofessional setting.*

## ***Hybrid Models***

There are multiple programs that use hybrid models integrating combinations of the traditional scheduling model, the ambulatory long block, and the X + Y model. Some programs utilize a traditional scheduling model for the PGY-1 and then transition the PGY-2 and PGY-3 residents into an X + Y model. A hybrid model might be employed by a residency program to allow some flexibility in scheduling, with a more intensive period of clinic exposure. This can be part of efforts to orient residents to clinic at the beginning of residency or to provide them with greater exposure at other times. Some programs follow a traditional model and integrate monthlong ambulatory blocks throughout the residency, for example, one long block per post graduate year so that there would be at least three ambulatory long blocks during the course of residency. Another option is to include multiple ambulatory long blocks in the third year of residency. Yet another alternative is the 1 + 1 model where residents alternate nonambulatory months with ambulatory months. Continuity clinic is only scheduled during ambulatory blocks in this 1 + 1 model. In any hybrid model, consideration should be given to variations in the number of preceptors required and clinic space availability based upon when the long blocks fall.

## **Evidence of Impact of Block vs. Traditional Clinic Schedules**

There are several examples of conversions from traditional clinic to block schedules in the literature. Most of these are single-site, pre-/post-experimental models but still offer some evidence and insight.

### ***Continuity***

The evidence related to continuity between residents and patients is mixed but overall supports an improvement in continuity, either perceived or measured. One brief report of a 2 + 2 inpatient/outpatient scheduling system increased continuity by 35% [10]. Another 1-year ambulatory care block pilot program improved visit continuity as defined by increased number of visits with the patient's primary provider, as well as a higher percentage of all visits with that primary provider [9]. However, some changes to X + Y scheduling models have decreased continuity from the patient perspective [7, 11], while simultaneously improving continuity from resident perspective [7, 10]. This means that although a resident in an X + Y system may have more of their clinic slots taken up by their panel, from the patients' perspective, they are seeing that resident less frequently, because they see other providers instead during the X period while the resident is away. A conclusion is that

residents in a block system are more likely to have continuity for routine follow-up visits but less likely for acute care visits occurring during the “X” part of the clinic block. Other types of continuity may benefit as well; there is better follow-up on diagnostic tests by residents [7], better perceived educational continuity [6], and reduced fragmentation of care in both the inpatient and outpatient settings [5].

### *Access*

Patient’s access to care appears to increase in the block system; there are reports of decreased no-show rates [9] and more opportunities for clinical encounters by residents [7]. Residents reported improved patient access to care [6], and improved empanelment, or a more consistent cohort of patients that is assigned to them [5]. Developing a means to schedule acute visits via a practice partner system, in which the attending or other linked provider is prioritized to see the patient, can help to maximize within-team continuity with people more closely linked to the resident provider. Either way, maintaining access for acute care needs is necessary and may require extra effort to include the primary care provider via sharing of clinic notes to maintain educational understanding of the patient’s course. In one of the authors’ experience in transitioning from a traditional clinic scheduling model to 6 + 2 scheduling model, there was a dramatic improvement in access as measured by the third next available appointment, from greater than 40 days down to an average of 21 days [12]. However, it is important to note that mathematically, even then best third next available will be equivalent to the average of the first three clinic slots for each of the cohorts (thus, for a 6 + 2 system, it will be 21 days on average; 4 + 1 would be 14 days; 3 + 1 would be 11 days).

### *Satisfaction*

Clinic block scheduling models are associated with improved resident satisfaction compared to traditional scheduling models. Additionally there is improved faculty perception of the educational value of clinic [5, 6]. Much of this is likely related to decreased stress of abruptly leaving inpatient duties, decreased distraction by conflicting needs of both inpatient and outpatient care, and improved comfort and empowerment based on time spent in a designated clinical setting. Clinic block scheduling is associated with improved team development and improved learning opportunities [5, 6]. Patient satisfaction evidence is mixed; in one study, it was similar between block and traditional models, but not as good in a combined system [13]. In another pilot, there was a suggestion of improved patient satisfaction [4].

## *Primary Care Interest*

All of these improvements support a reported increased interest in primary care by residents participating in a block system. Residents reported improved perception that ambulatory medicine is enjoyable to practice [6]. There is also evidence that a dedicated primary care pathway emphasizing clinic block scheduling is associated with an increase in interest in primary care as a career choice [14]. However, there is no published data related to X + Y scheduling and the ambulatory long block data that supports an increased interest in primary care careers. The Association of Program Directors in Internal Medicine 2015 annual survey did not reveal any program director perception of increased interest in primary care careers in programs utilizing X + Y scheduling models.

## *Clinical Outcomes*

There is conflicting evidence regarding whether clinic block systems improve quality of care or reduce medical errors. However, as previously noted, there is some evidence that clinic block conversions can improve follow-up rates by residents on diagnostic tests they have ordered [7]. This would presumably be associated with decrease in handoffs and associated miscommunications, but this has not been measured. There is evidence that block systems are better associated with improved quality of care for chronic conditions, such as diabetes or hypertension [15].

## **ACGME Requirements for Clinics**

ACGME requirements for continuity clinics are discussed in Chap. 5. For the purpose of this guide, we only focused on the design of the ambulatory portion of the resident schedule, which addresses the 30 months of longitudinal continuity clinic requirement per the ACGME.

(See Box 3—Guidelines.)

### **Box 3 ACGME Guidelines and Requirements**

**Guidelines:** We used the 2016 ACGME program requirements, which included:

- No more than 1 month between clinics (not inclusive of vacation)
- Minimum 130 distinct half-day outpatient sessions
- At least one-third of total time spent in ambulatory setting (of which emergency medicine can only account for 2 weeks)
- Scheduling to minimize conflict between inpatient and outpatient responsibilities
- Adequate time to review performance data related to chronic disease

## Potential Benefits of an X + Y System

Combining this information, converting to an X + Y system has many potential benefits for an environment in which continuity clinics are typically fragmented and often perceived as a distraction from other competing requirements of residency. Such block clinic conversions may decrease this conflict between inpatient and continuity experiences. This scheduling model may lead to more available time for educational learning opportunities as well as time to employ related learning techniques, population health, and quality improvement activities [6]. It can allow for easier designation of academic half-days and the integration of interprofessional learning experiences. It also allows for an immersion effect, in which residents can more fully delve into clinical and systems issues related to the continuity clinic. More time spent in clinic may allow for an improved ability to evaluate and provide feedback by faculty and members of the team that have more exposure [16]. Some faculty report an enhanced ability to implement a 360 evaluation due to more time spent with clinic staff during outpatient weeks and are thus able to provide better feedback on professionalism and communication.

Benefits exist on the inpatient side, and ward teams avoid having a resident leave for clinic, thus reducing handoffs, which inherently are complicated by team members not being present to answer questions in real time. Team transitions can improve with this scheduling model. An X + 1 staggered model reduces the phenomenon of “switch day” chaos on the wards since interns and senior residents can rotate in a way that is offset from each other; there is more continuity with a member of the inpatient team who knows the patients on the service [6]. Finally, many of the teamwork skills are gained, while inpatient can be translated and reinforced in a clinic block system, which tends to emphasize and encourage ambulatory clinic team-based care for residents that are on the X portion of their schedule, away from clinic.

## Barriers to an X + Y System

There are many barriers to adopting an X + Y system. Most importantly, aligning schedules with all stakeholders—including all hospitals residents have rotations in—can be very difficult as an X + Y model requires inpatient rotation schedules to follow a certain pattern. This scheduling model is more complex and ideally utilizes highly trained scheduling support staff who are familiar with trainee schedules, centralized scheduling, and software to support long range scheduling. In addition, there must be a robust coverage strategy for clinic when trainees are on the other part of their rotation (X or Y) so that clinical care is not compromised. This scheduling model may be difficult for smaller programs as there may not be adequate coverage for inpatient teams.

Some ways to overcome these barriers are to involve key stakeholders at an early stage of planning. The residency program must work with all stakeholders, including clinic directors, to review the advantages and disadvantages for the new

scheduling model. In some cases the overall benefit for the residency program and institution may be overwhelming and supersede specific clinic-level disadvantages. Other approaches include matching the X + Y schedule to existing block rotations, calculating available numbers of cohorts and required ambulatory vs. ward time, and developing a mock schedule to analyze the impact of such a change before implementation. For more information on practical approaches to adopt an X + Y system, please see the perspective in *Journal of Graduate Medical Education* [17]. Also planning specific coverage when trainees are on other rotations should be built into the scheduling model. A practice partner model is one way to help with coverage such as paired residents managing a panel of patients or a team practice approach in which residents are partnered with nurse practitioner trainees, faculty, or nursing care managers. For instance, a resident could be paired with a nurse practitioner (NP) resident/fellow to manage a common panel of patients. While the resident is on their inpatient rotation, the NP is the practice partner. Patients are made aware of this model up front and are given cards that have both learners' names on it and the common faculty member so patients are fully aware of the team that is taking care of them. This model not only allows for improved team continuity but also creates a true interprofessional collaborative practice environment as learners from different disciplines co-manage patients within a single team with the same attending.

Another way to help provide coverage is to have designated residents who serve as the point person of the day on a particular clinic day or half-day. The residents cover for other residents who are not in clinic, handling issues such as urgent phone calls or taking care of semi-urgent forms. Attendings can also be utilized to cover residents, especially in clinics where residents are not present on a daily basis. Combining a nurse or staff to perform a triage function with a designated provider to review selected materials, give feedback, and sign orders or facilitate timely care can help to reduce the burden on residents who are unavailable.

Overall, evidence supports that programs that undergo a change to an X + Y system have improved resident satisfaction, improved learning environments, and improved perception of primary care experiences. There appear to be improvements in access and empanelment, but mixed impacts on continuity, and unclear impacts on quality of care.

## **Advantages/Disadvantages of the Scheduling Models**

Each type of scheduling model has both advantages and disadvantages such that each program must carefully evaluate what is appropriate for their institution. As there is a growing body of literature on the various scheduling models, there is available literature for program administrators to review if scheduling changes are contemplated within a program. We will outline some of the validated and hypothesized advantages and disadvantages in this section. It should be noted that various factors including electronic health records, clinic-specific systems, and resident culture may affect the magnitude of a schedule transition.

(See Table 1—Advantages/disadvantages of X + Y scheduling system.)

**Table 1** Advantages/disadvantages of X + Y scheduling model

Advantages	Disadvantages
Regularly interspersed periods of clinic with weekends off during ambulatory block	Perception of more limited elective time (if ambulatory clinic electives not counted)
Allows for morning, afternoon, and/or evening clinics	Weekend night float/medicine/call transition from wards can limit Monday clinics and electives
Works with commonly used 13-block system to allow for scheduling compatibility with other residency programs	Decreased ability of residents to swap rotations with other residents
Allows for four integrated resident cohorts who may cover for each other when away from clinic and may form tight bonds with other residents on the same ambulatory block	Splits residency effectively into integrated cohorts, which may limit interaction on wards/in clinic, coverage issues, unforeseen schedule adjustments
Fixed clinic scheduling makes scheduling follow-up appointments easier in most cases (e.g., 1 week for close follow-up or 2/4/6/12 months of intervals for chronic management in a 6 + 2 system or every month in a 3 + 1 system)	Limited patient access (acute visits, non-face-to-face interactions, completion of forms) for X week periods between ambulatory blocks (e.g., if a patient needs to be seen 1 week after an appointment in 3 + 1 scheduling system)
Allows better use of resident clinic room space by making it easier to schedule a consistent number of residents	Increased scheduling difficulty related to scheduling ambulatory electives during half-days not in clinic (with students and residents alike)
Allows for scheduling of related ambulatory “elective” half-days	May require programs to find high-quality half-day experiences for residents, which may lack continuity or rigorous training experience
Permits flexibility for recurring didactic, quality improvement, and panel management sessions including having a consistent academic half-day	Requires programs to staff and support supervision of half-day didactics, quality improvement, and panel management sessions
Increased appreciation for clinic by residents	Increased stress on clinic staff in the management of patients between ambulatory blocks (Y weeks)

***Traditional Model***

In a traditional scheduling model, residents are scheduled for one half-day of continuity clinic per week throughout their residency. Within a traditional model, residents are scheduled for weekly clinics, usually on the same afternoon every week, and may be paired with the same faculty preceptor on that given afternoon. Thus, residents and faculty may develop a continuity relationship that may last from 1 to 3 years. In contrast to the X + Y scheduling model, the traditional model theoretically sets the interval between clinics at 1 week. Residents can schedule their patients to see them within 1 week for acute or urgent issues. Interval paperwork which accumulates for the resident will be available for the resident to complete within a week.

The disadvantage of a traditional scheduling model is that the resident clinic is simultaneously participating in another rotation including inpatient wards, ICU rotations, and electives, for example. During an inpatient rotation, a resident would be expected to round with the team in the morning and then travel to clinic to see clinic patients. Depending on the call system, the resident may be expected to return to the inpatient wards after the clinic. This schedule causes tension for the resident who must balance caring for acutely ill patients with the need to see usually less ill patients in the outpatient setting. Programs often try to minimize this tension by canceling clinics if the resident is on a long call admission day or is in the ICU, for example. Aside from these times, clinic is routinely canceled during vacation and night float rotations. It is possible for many potential clinic cancelations to occur which can compromise patient care.

(See Box 4—Considerations for how to create/redesign the ambulatory week.)

#### **Box 4 Considerations for How to Create/Redesign the Ambulatory Week** **Considerations for how to create/redesign the ambulatory week**

- How many clinic sites do you need or are available?
- Will all of your clinic sites be able to handle the new scheduling demands including dealing with increased resident-related exam room needs and staffing during ambulatory weeks?
- How much administrative time will your residents need to complete notes, follow up on lab results, possibly finish specialty clinic notes, etc.?
- How many preceptors are available and when are they available?
- How are you going to pair the preceptors? For example, will preceptor A precept every Tuesday with a different group of residents every week, *or* will preceptor A precept four clinic sessions every X amount of weeks pairing their preceptor with a group of residents' ambulatory block?
- How will residents manage patients and patient-related work such as forms and controlled substance refill requests between ambulatory weeks?
- What are expectations for coverage of electronic notifications of residents between ambulatory weeks?
- Who will cover patient-related questions between ambulatory weeks especially if resident is on rotations such as night float?

How will you handle holidays and other non-clinic times such as thanksgiving week, New Years, retreats, in-training exams, etc. where many programs provide vacation time for residents?

## **Conclusion**

The ACGME Residency Review Committee of Internal Medicine updated regulations in 2009 requiring medicine residency programs to develop scheduling models that reduce the conflict between inpatient and outpatient trainee responsibilities. As

programs consider schedules that separate inpatient and outpatient experiences, we hope this chapter helps to guide residency programs and clinics on the impact of the different scheduling models on continuity, access, satisfaction, primary care interest, and clinical outcomes. In general, block models demonstrate better continuity from the patient perspective followed by traditional or hybrid models; patient satisfaction appears similar in programs using block design and traditional models compared to hybrid models. Recognizing that a “one-size-fits-all” approach is not feasible, this chapter explicitly draws out the advantages and disadvantages of each scheduling model so to allow programs to decide what works best for their residency programs and patient population. Although variations in studied outcomes are noted between the different models, it is not clear as to why these differences exist and thus are areas for further study. Ultimately the goal is to best align resident education with coordinated and continuous patient-centered care. Considering changing scheduling structures that maximize these important outcomes can be a useful exercise by motivated residency program leadership.

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# Chapter 10

## Maximizing Continuity in Continuity Clinic



William Weppner, Reena Gupta, and Robert J. Fortuna

### Introduction

Continuity of care between a physician and patient is associated with improved adherence to treatment, efficiency of care, and overall better clinical outcomes for patients [1–7]. Seeking ways to maximize continuity is an important goal of primary care clinics and is particularly relevant to resident continuity clinics. This chapter will discuss both the importance of continuity, as well as different means of measuring it. In addition, we will explore means to maximize continuity in teaching clinics using different schedules and models.

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## Learning Objectives

1. To be able to explain the importance of continuity on trainee experience and patient outcomes.
2. To be able to explain different continuity relationships and different measures of continuity.
3. To be able to apply approaches to maximize continuity in trainee clinics.

## Outline

- The Case for Continuity
- Types of Continuity
- Measuring Continuity
- Maximizing Continuity

## The Case for Continuity

Studies have demonstrated that continuity is associated with improved chronic disease management, including quality of hypertension and diabetes care [1, 6, 8, 9]. Increased continuity is associated with better delivery of preventative care, including colorectal screening rates, breast cancer screening rates, and immunizations [1, 6].

Beyond clinical outcomes, continuity is associated with improved satisfaction for both physicians and patients. Longitudinal relationships and continuity of care form the foundation of many clinical specialties. Physicians find the long-term connections formed in the doctor-patient relationship incredibly rewarding [3]. Supporting fundamental aspects of continuity improves provider satisfaction and is important to preventing burnout while promoting professional responsibility [10, 11]. These longitudinal relationships and enhanced continuity also impart increased trust of physicians by patients [12]. These influential relationships are also appreciated by trainees. Experiences with continuity of care throughout training can influence career choice. In fact, developing a strong relationship with patients during training is a powerful predictor for entering a primary care specialty [13].

Beyond improvements in clinical outcomes and satisfaction, there is evidence that improved continuity is associated with reduced hospital utilization and lower costs [4, 14, 15]. As the national healthcare reform progresses toward value-based

payment structures, patient satisfaction and financial accountability will become increasingly important.

## Types of Continuity

Continuity can be defined from both the patient and trainee perspectives [1]. From a patient perspective, the most basic continuity measure indicates the proportion of visits in which that patient is seen by their primary care provider (PCP). From a resident physician perspective, continuity indicates the proportion of visits they provide that occur with patients from their assigned panel. Both forms of continuity are crucial to consider when developing office scheduling processes and protocols to optimize quality, patient satisfaction, and physician satisfaction in a teaching practice.

The concept of continuity can be further extended to include other members of the clinical team. Some programs include the frequency of attending-resident precepting dyad to define continuity between a supervising physician and trainee. Some institutions follow the continuity of team providers (i.e., supervising physician and resident or dyads of residents that share a panel of patients). The Veteran Affairs (VA) now includes the assigned supervising physician in measures of continuity when considering continuity among physician residents. With the expansion of team-based care models, continuity between patients and other team members who help to coordinate care is becoming increasingly important.

## Measuring Continuity

As one would expect, there are myriad different metrics for measuring continuity of care [16]. Continuity indices that are commonly used in training clinic settings (*see* Box 1) include the “Usual Provider Continuity” (UPC), “Modified Continuity Index” (MCI), “Modified, Modified Continuity Index” (MMCI), and “Continuity of Care” (COC). There are strengths and weaknesses for each. The UPC, while easier to interpret, does not take into account dispersion of care among other providers [17]. However, this metric is less reliable when there are fewer visits. The corresponding metric from the providers’ perspective is the PHY (“Continuity for Physician”), which measures the proportion of visits that an individual physician provider sees his or her own patients in a given time frame [18].

Measuring continuity requires sufficient data on the number of visits with healthcare professionals. This allows comparison of continuity, as well as diffusion (or concentration) of care between different healthcare providers and different settings

of care. Some continuity indices require empanelment of patients to a specific primary care provider (such as UPC), while some do not (COC, MCI, MMCI) [16]. Clear definition of the types of visits or encounter that qualify may be necessary (e.g., PCP visits, urgent care visits, emergency room visits, specialist and subspecialty visits). These indices range between 0 and 1; they are closer or equal to 0 if all visits are with different providers and closer or equal to 1 if all visits are with the same provider. One of the easiest to understand continuity measures is the UPC metric. This is simply the percentage of primary care visits that are with the primary care provider, as seen from the patient's point of view. This is commonly used, because it is one of the most easily interpretable, e.g., "the UPC was 0.78, indicating that for 78% of measured visits, the patient saw their designated PCP." An innovative modification of the UPC continuity measure, used by the Veterans Administration Health System, may include emergency department visits inside or outside the VA in the denominator. Continuity is lower if patients visit the emergency department more often, thereby placing responsibility on the primary care team to prevent unnecessary emergency department visits. In the VA system, a stated goal is that 75% of the time, a patient will see their own provider when they see a primary care provider or come to the emergency department [19]. The goal is to maximize the number of appropriate visits with the PCP (numerator) while minimizing unnecessary ED utilization and visits with noncontinuity providers (denominator).

The MCI and MMCI provide a sense of continuity with a single provider but also correct for dispersion among other providers [20]. There is some suggestion that the MMCI is more appropriate than UPC, COC, or MCI for resident providers, to adjust for dispersion among other providers [20].

### Box 1 Formula for Calculating Commonly Used Continuity Metrics

- Usual Provider of Care (UPC) =  $n/N$
- Continuity of Care Index (COC) =  $\sum_{i=1}^k n^2 - N / (N(N-1))$
- Modified Continuity Index (MCI) =  $1 - (P/N + 0.1)$
- Modified, Modified Continuity Index =  $MCI / (1 - 1/N + 0.1)$

*N*, total number of visits for a single patient

*n*, number of visits to a single provider (typically PCP)

*P*, total number of providers seen by a single patient

*i*, provider rank (index), from 1 to *P*

How such metrics are interpreted in settings where a resident or "associate" PCP has a panel shared with an attending or "supervising" PCP may vary. In addition, the type of visits that are counted may be defined in different ways. For example, in VA clinics, continuity is assessed with UPC which the numerator being the encountered visits with the associate PCP (resident) + preceptor PCP (supervising physician); the denominator is all visits to primary care clinics, urgent care clinics, or emergency department visits. Thus, if a resident sees their own patient in continuity or episodic

care clinics, this counts for continuity. If a resident sees a patient that is not their patient but precepts with the panel attending for that patient (and the attending is on the encounter form as a primary or secondary), then this counts for continuity.

These metrics can be altered from the patient perspective to provider perspective, in order to evaluate the continuity a provider (such as a resident) may experience with a given panel of patients. While not as strongly associated with health outcomes, this can be important for the resident's experience in continuity clinic and may be associated with improved provider satisfaction. This metric is more commonly evaluated in residency continuity clinic settings, when scheduling changes are enacted to make sure continuity is improved for both patients and providers.

Finally, most of these metrics are based on more traditional face-to-face visits in primary care, urgent care, emergency care, and/or specialty clinic settings. They do not typically account for encounters via telephone, secure messaging, group visits, or affiliated members of the team, although these would obviously impact coordination of care, access to care, and the overall relationship between a provider and patient.

## Maximizing Continuity

Maximizing continuity is important to support patient and physician satisfaction, as well as to improve quality of care. There are several factors associated with improved continuity of care, including the consistent use of scheduling protocols, increased faculty clinical time, and increased number of resident clinical sessions per week [1]. Several examples are presented in Box 2 below. Having clearly defined scheduling protocols that prioritize continuity for acute, chronic, and preventive care visits is an essential component of maintaining continuity in resident practices. These scheduling protocols will be unique to each practice and must balance the need for continuity with the need for maintaining access for patients. The balance between continuity and access will be partially contingent upon the amount of time that residents are available in clinic.

Maximizing the time that residents are in clinic is also a critical component to support continuity. Many specialty boards and the Accreditation Council for Graduate Medical Education have established requirements outlining the minimum number of ambulatory clinics to complete prior to graduation. Although this establishes the minimal requirements, the absolute number of session per week required is not prescribed, and the correct number of sessions to maximize continuity is not known. However, programs with increased number of resident clinical session per week are typically able to provide greater continuity to patients and residents. Resident panel size should also be determined based on the number of sessions residents are in clinic and the number of patients seen per session to provide adequate access and maximize continuity. There is mixed evidence regarding continuity in block schedules compared with traditional schedules. For more information, please refer to Chap. 9 on "Traditional and Block Scheduling."

Rescheduling clinics for residents who are pulled to support inpatient needs is another important measure to maximize resident and patient continuity [1]. This

requires programmatic and institutional recognition of the importance of outpatient training and patient access to their resident physician. Rescheduling policies also discourage residents from being pulled unnecessarily from ambulatory rotations.

Thoughtful integration of Advanced Practice Providers (APPs), who may be nurse practitioners or physician assistants, can also support patient continuity with resident physicians. APPs are important members of ambulatory teams who help improve access to care for patients. At the same time, APP visits may also hinder direct patient continuity with their resident physician. This can be reduced by having clear scheduling protocols that favor scheduling with resident PCP unless the patient has a need for an urgent appointment and the PCP is not available. Individual clinics must balance the competing needs for maintaining access for patients while prioritizing continuity with residents. This balance will be different for each program. However, having residents designated to teams with a full-time or almost full-time clinician, often a nurse practitioner or physician assistant, can provide a continuity base for a panel of patients with several resident or faculty physicians. In many teaching practices, patients are seen by numerous providers when their resident or faculty PCP is not available. Having a designated full-time team anchor clinician and clear scheduling protocols that require scheduling appointments with this single alternate team provider when the PCP is not available can greatly increase the continuity experience for patients so that they are seen by one of two more closely linked providers nearly all visits.

### **Box 2 Examples of Specific Approaches to Improve Continuity in Resident Teaching Clinics**

Processes to maximize continuity	Examples
Clinic scheduling protocols	<ul style="list-style-type: none"> <li>• Establish clear protocol to prioritize continuity for nonurgent follow-up and preventive care visits with the primary residents</li> <li>• Develop process to assess whether urgent appointments can wait for primary residents. Otherwise, prioritize visit with primary attending or team advanced practice provider (APP) or other practice partner</li> </ul>
Rescheduling residents pulled from clinic	<ul style="list-style-type: none"> <li>• Adopt policies that prioritize stable and consistent resident clinic scheduling and prevent residents being pulled from clinic to cover other clinical duties</li> <li>• If canceling clinics is necessary, require that residents are rescheduled to the clinic within several days to accommodate patients. Policies should emphasize the importance of clinic time, but not penalize residents</li> </ul>
Increased resident ambulatory clinical time	<ul style="list-style-type: none"> <li>• Examine ways to increase the amount of time spent in clinic. Increasing the number of session will improve availability</li> </ul>
Thoughtful use of Advanced Practice Providers	<ul style="list-style-type: none"> <li>• Schedule patients with their PCP, and if PCP is not available and patients need urgent appointments, schedule with a full-time team anchor clinician or practice partner so that patients see one of two clinicians nearly all visits</li> </ul>

## Conclusion

Based on a review of available evidence, continuity of care appears closely associated with all aspects of the “quadruple aim” (improving care outcomes, enhancing patient and provider experience, and lowering costs) described by Bodenheimer and Sinsky [21]. Residency teaching practices should place high priority on measuring and tracking continuity and implementing strategies to maximize continuity of care for their patients and trainees.

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# Chapter 11

## Population Health Management for Residents



Robert J. Fortuna and Halle G. Sobel

### Introduction

Healthcare expenditures in the United States are far greater than any other country in the world, yet the United States lags behind other countries in many quality indicators. This has led to the recognition that addressing the health of populations is necessary to improve overall healthcare quality while containing costs. In 2008, the Institutes for Health Improvement (IHI) identified improving the health of populations as one of the core elements of the “triple aim” for improving the US healthcare system [1, 2].

To address the triple aim and evolving realities of the US healthcare system, residency training programs must embrace the dual responsibility of training residents in direct patient care and population-based health management. Residents must therefore develop the skill set to care for the patient in front of them as well as the larger panel of patients attributed to them. As the US health system progresses toward increased accountability throughout medicine, residents must learn to be accountable for the health outcomes of the populations that they serve.

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## Learning Objectives

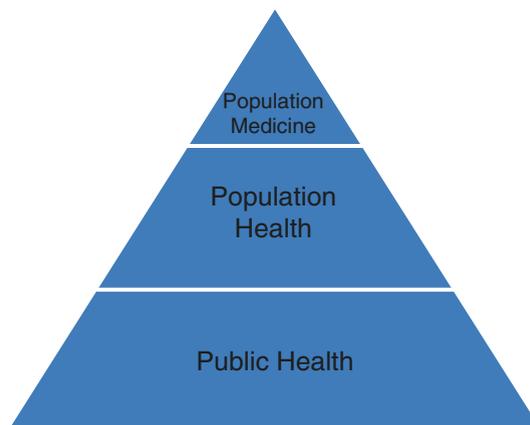
1. Understand the evolving importance of population health management.
2. Understand the multiple dimensions of population health management.
3. Understand the resident's role in population health management.

## Outline

- Definitions and Scope
- Importance of Population Medicine
- Clinical Quality Measures
- Functional Elements: Dashboards and Risk Stratification
- Clinical Roles
- Teaching Population Medicine
- Alignment Across Academic Medical Center

## Definitions and Scope

Population health-based strategies to improve health date back multiple decades, yet there remains a lack of clarity in the various definitions related to population health management [3]. There are many overlapping themes across the definitions of public health, population health, and population medicine [1]. Although public health is a well-established specialty, population health and population medicine have more recently evolved over the past several decades.



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Public health, population health, and population medicine all differ in breadth and scope. Public health is a broad discipline concerned with the health of a population in a large geographic region, the many determinants of health, and the influence of government and community organization to improve the health within the designated geographic area [4]. Population health and population medicine are less clearly defined. The most commonly accepted definition of population health was defined in 2003 as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group.” [5] Population health is often considered to incorporate broad interventions to address medical, social, and community determinants of health [5, 6] but differs from public health in that population health is less tied to governmental agencies, health departments, or a broad geographic area [1].

Population-based strategy	Examples
Public health	<ul style="list-style-type: none"> <li>• <i>Scope</i>: Includes broad determinants of health, including healthcare, social factors, environmental factors, and occupational components</li> <li>• <i>Leadership</i>: Includes government, community organizations, and healthcare organizations</li> <li>• <i>Clinical population</i>: Generally focused on a broad geographic region (county, state, nation)</li> </ul>
Population health	<ul style="list-style-type: none"> <li>• <i>Scope</i>: Includes medical and social determinants of health</li> <li>• <i>Leadership</i>: Healthcare organizations and insurers</li> <li>• <i>Clinical population</i>: Focused on region cared for by a health plan, hospital, or clinical group</li> </ul>
Population medicine	<ul style="list-style-type: none"> <li>• <i>Scope</i>: Focused on healthcare factors in clinical population of patients</li> <li>• <i>Leadership</i>: Clinicians and clinical teams</li> <li>• <i>Population</i>: Panels of patients</li> </ul>

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Population medicine is further focused in clinical scope and how it conceptualizes populations [4]. While population health is slightly broader in scope, population medicine is used to describe “activities limited to clinical populations and a narrower set of health outcome determinants” [7].

Population medicine brings a population view to clinical care and is focused on specific panels of patients [8]. Although residents address psychosocial factors and engage community resources, the majority of the population-based activities that occur within physician offices fall under the general category of population medicine.

## Importance of Population Health Management

### *Clinical Importance*

Population medicine has become a vital component of primary care. Resident education has traditionally been very focused on caring for the patient in front of them, colloquially referred to as “individual medicine” or direct patient care

[4]. Direct patient care, however, is not mutually exclusive with population health management. Population health management provides the opportunity to improve clinical quality measures across a broad panel of patients. Through management of patient registries and population outreach, residents can improve the health of the patient population they serve in a much more effective and efficient manner. Population medicine complements individual medicine by (a) reinforcing the importance of chronic disease management and preventive care between visits, (b) continuing the relationship with the healthcare team outside of an appointment, and (c) reaching out to patients who are overdue for care. All of these strategies serve to improve the health of patients and reinforce their relationship with their healthcare team.

To optimize the impact, it is important to develop a culture within a practice that prioritizes both individual and population medicine.

### ***Financial Importance***

In addition to the clinical importance, population health management has significant contractual and financial importance. Academic medical centers are increasingly entering into contracts that incorporate value-based payments, including pay-for-performance, shared savings, and shared-risk contracts. At the same time, the Centers for Medicare and Medicaid Services (CMS) are quickly moving toward value-based payment structures. Value-based payment structures rely heavily on population health management strategies to improve clinical quality and reduce cost. For instance, pay-for-performance contracts are directly tied to the system's performance on defined clinical quality measures (CQMs), such as the proportion of patients with diabetes who are treated to goal. Similarly, many shared savings contracts are based on meeting quality metrics in addition to containing cost.

Teaching the financial relevance of population medicine and value-based payment structures is an important component of resident education to prepare residents for future independent practice.

### **Clinical Quality Measures**

Defining clinical quality goals is an essential step toward establishing a population health management program and measuring the clinical impact. Clinical quality measures (CQMs) are specific definitions of the quality metrics. Over the past several decades, there have been many clinical quality measures developed. One of the most widely used set of measures is the Healthcare Effectiveness Data and Information Set (HEDIS), developed by the National Committee for Quality Assurance (NCQA). In addition to NCQA, the Agency for Healthcare Research and

Quality (AHRQ), Centers for Medicare and Medicaid (CMS), and individual states have published their own widely used quality measures.

All of the quality measures have very tightly defined specifications. These specifications allow for standardization of metrics across the nation but may also limit health systems' flexibility in defining quality. At times, CQMs even lag behind national best-practice standards. Residents must be taught the necessity for standardized definitions of quality but must also understand the need to incorporate individualized clinical judgment.

Organization	Examples of Clinical Quality Measures (CQMs)
National Committee for Quality Assurance (NCQA)	<ul style="list-style-type: none"> <li>• Healthcare Effectiveness Data and Information Set (HEDIS)</li> </ul>
Agency for Healthcare Research and Quality (AHRQ)	<ul style="list-style-type: none"> <li>• Prevention Quality Indicators (PQI)</li> <li>• Consumer Assessment of Healthcare Providers and Systems (CAHPS)</li> </ul>
Centers for Medicare and Medicaid Services (CMS)	<ul style="list-style-type: none"> <li>• Physician Quality Reporting System (PQRS)</li> </ul>
State-based measures	<ul style="list-style-type: none"> <li>• NYS Quality Assurance Reporting Requirements (QARR)</li> <li>• Massachusetts Health Quality Program (MHQP)</li> <li>• California Cooperative Healthcare Reporting Initiative (CCHRI)</li> </ul>

## Functional Elements: Dashboards and Risk Stratification

### *Dashboards and Registries*

Advancing health informatics is revolutionizing medicine and providing the necessary data from electronic health records and claims data to the support population medicine, such as the development to condition-specific registries of patients. Disease registries provide the ability to identify and manage patients with a particular condition, such as diabetes or hypertension. Similarly, preventive care registries provide the ability to identify gaps in preventive care, such as colorectal cancer screening, breast cancer screening, or immunizations.

Dashboards provide the user interface to interact with patient registries. The fundamental purpose of a dashboard is to (a) deliver a broad population-based view of the health of the patient panel based on the defined CQMs and (b) provide the ability to identify specific gaps in care.

It is important for residents to understand the broader view of the care they are providing. For instance, it is natural for resident physicians to believe that their hypertensive patients are well controlled based on their experience with the last couple of patients they have seen. However, this may not be reflective of their broader patient panel. The dashboard will provide this population view of the health of the patient panel to guide interventions and care.

The most powerful element of dashboards is their ability to generate reports of gaps in care. Gap reports provide an actionable list of patients not reaching clinical goals or patients overdue for preventive care. These reports serve as the foundation to guide outreach by the clinical team.

## ***Risk Stratification***

Risk assessment is quickly becoming a crucial element of population health management. Identifying the highest-risk patients in a panel is necessary to guide resources and perform outreach. The typical full-time physician has approximately 1800 attributed patients in their panel. Risk assessment tools provide a standardized method for assessing risk across the entire panel.

There are many different risk assessment tools available. CMS began evaluating different risk stratification instruments in the 1990s to guide clinical payments. In 2004, CMS released Hierarchical Condition Categories (HCCs) [9]. Since that time, HCCs have been revised and are now based on 70 different clinical condition categories obtained from ICD codes and administrative data. In addition to HCCs, several other risk stratification tools have been developed, most based on clinical conditions and administrative data to predict cost expenditures or resource utilization.

When using risk stratification to guide care management and other population health-based initiatives, it is important to recognize that high-risk scores do not necessarily equate to the ability to impact the clinical course. For instance, a patient with lymphoma in remission may score high on risk assessment but may not require intensive care management, while a patient with poorly controlled diabetes may benefit from more intensive support. Beyond risk assessment, newer models have begun to incorporate the concept of “impactability.” These models strive to identify the combination of high-risk patients and situations that are amenable to intervention.

In addition to risk assessment, many programs are beginning to incorporate cost and utilization data into population-based decisions to guide care management resources.

<b>Risk stratification tool</b>	<b>Description</b>
Hierarchical Condition Categories (HCC)	Developed by the Centers for Medicare and Medicaid (CMS). HCC contains 70 condition categories selected from ICD codes
Adjusted Clinical Groups (ACG)	Developed at Johns Hopkins University and uses both inpatient and outpatient diagnoses to classify each patient into 93 ACG categories
Chronic Comorbidity Count (CCC)	CCC is the sum of selected comorbid conditions based on the Agency for Healthcare Research and Quality (AHRQ) Clinical Classification Software
Charlson Comorbidity Measure	The Charlson model predicts the risk of 1-year mortality based on a range of comorbid illnesses. The model evaluates the presence or absence of 17 health conditions
Impactability Scores	Impactability scores extend risk stratification tools to attempt to identify patients amenable to a particular intervention, such as care management

## Clinical Roles in Population Health Management

### *Resident Role*

Population medicine is quickly becoming an integral component of ambulatory resident practices. The ambulatory clinic is an opportune location to learn and perform these tasks as residents assume ownership of a panel of patients. Resident panels are typically smaller than faculty panels and thus are a manageable size for residents to learn the skills and practice population medicine.

Population-based approaches include (a) working with patient registries to improve preventive care and chronic disease management, (b) performing outreach between clinical visits to work with patients not meeting goals, (c) engaging with a range of community services, and (d) addressing social determinants of health and disparities [6]. This requires a team-based strategy with all team members working at the top of their training and licensure.

It is important that resident physicians work effectively within an interdisciplinary team to improve the health of their patient panels and remain engaged in the outreach efforts. A structure should be in place to teach residents the principles of leading a multidisciplinary team and provide graduated responsibility. Residents must engage in the process and establish the clinical priorities for population medicine efforts that are most applicable to their panels. This requires an in-depth knowledge of the gaps in care and a detailed familiarity with chronic disease and preventive care registries [10].

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#### **Resident role in population medicine**

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Establish the clinical priorities

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Engage in the process

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Remains cognizant of gaps in care

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Address gaps in care at visits and through outreach

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Keep up-to-date disease registries and preventive care registries

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Perform direct outreach to patients, when necessary

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### *Team-Based Approach*

Managing the health of populations between visits is critical and requires a coordinated team approach [11]. While resident physicians must establish the clinical priorities and guide the process, they do not need to assume all of the responsibilities. Managing teams is a critical component of modern medicine and should be a fundamental component of education surrounding population medicine. These teams commonly include nurses, office support staff, social workers, and care managers, with all team members working at the top of their training and licensure [11].

The patient-centered medical home (PCMH) provides the necessary components to support many elements of population health. Depending on the institution, these

team members may include secretaries, nurses, data coordinators, care managers, and social workers. The PCMH is more broadly discussed in chapter “Patient Centered Medical Home”.

## **Teaching Population Health Management**

Population health management curricula are evolving within residency clinics to help to achieve several core resident competencies. The requirements for each population medicine program are typically under the leadership of the residency program director and/or faculty champions. Curricula should address the importance of population medicine, elements of the team-based approach, the specifics of clinical quality measures, and functional tools, such as clinical dashboards, to support population medicine.

The first part of a population medicine curriculum is to assign resident panels at the beginning of the academic year. Patient panels are commonly transferred from graduating residents to either a PGY-1 or PGY-2 practice [12]. Some programs have worked to balance panels based on age, sex, and chronic disease status [13]. Once panels are assigned, residents can learn about the importance of evidence-based medicine and make sure these standards are applied for preventive care and chronic disease management such as managing diabetes, asthma, COPD, and congestive heart failure. Preventive care registries provide the mechanism to teach about recommended preventive care, such as colorectal cancer screening, breast cancer screening, reviewing immunization status, and other appropriate preventive measures pertinent to the patient.

Population medicine curricula should strive for a balance of meaningful clinical team building, setting population-based goals, and routine reevaluation of progress toward the established goals. For example, the first year of training may be divided with the first quarter focused on team building, the second quarter focused on chronic disease management (hypertension and diabetes), the third quarter focused on preventive care, and the last quarter focused on overall reevaluation. As residents progress, it is important to develop a more comprehensive approach to monitoring and improving multiple elements of population medicine simultaneously.

### ***Accreditation Council for Graduate Medical Education (ACGME): Competencies and Entrustable Professional Activities (EPAs)***

The importance of population medicine is recognized at all levels of education. The Accreditation Council for Graduate Medical Education (ACGME) has developed milestones to provide a framework for the assessment and development of key

dimensions of physician competency. Several components of the Practice-Based Learning and Improvement (PBLI) and system-based practice (SBP) competencies have elements that are related to population medicine [14]. The PBLI-1 milestone includes examining opportunities for improvement within one's own practice and acting on those opportunities; PBLI-2 includes analyzing one's own clinical performance data and acting on that data to improve care; PBLI-4 requires practice improvement cycles guided by the medical literature; and SBP-1 includes working within an interprofessional team [14].

A comprehensive population medicine curriculum will provide a structure to reach these competencies [15]. For example, residents may receive a list of all of their patients with diabetes who are not at their hemoglobin A1C goal. They would then receive instruction on standards of care for patients with diabetes and then apply that knowledge to the care of their population of diabetic patients. The residents would work with interdisciplinary teams to identify diabetic patients in their panel not at goal, reach out to uncontrolled patients, and work to improve the care of patients not meeting established clinical goals. As residents progress in their training, they should develop the ability to proficiently manage populations of patients at the level of a practicing physician.

These competencies subsequently lead into Entrustable Professional Activities (EPAs). EPAs integrate competencies, knowledge, skills, and attitudes into discrete work tasks that can be accomplished independently by trainees ready for independent practice [16].

<b>Practice-based learning and improvement (PMLI) and system-based practice (SBP) milestones</b>	<b>Competency</b>
PBLI-1	Monitoring practice the goal for improvement
PBLI-2	Learning and improving by a performance audit
PBLI-4	Perform practice improvement cycles guided by the medical literature
SBP-1	Effectively works in an interprofessional team

## **Alignment across Academic Medical Centers**

The importance of population-based strategies crosses many departments at large academic medical centers. Residents will often engage with different elements of population health as they move through different rotations. Inpatient units and subspecialty departments frequently have care managers that engage in elements of population health that will overlap with outpatient efforts. It is important for medical directors leading outpatient population health strategies to align these efforts across the academic medical center.

## Conclusion

Population health management has become an essential component of primary care and residency training. To improve the overall quality of care, residency training programs must embrace the dual responsibility of training residents in direct patient care and population-based management. Residents must therefore develop both the skills to care for the individual patient in front of them as well as be accountable for the larger population of patients that they serve.

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# Chapter 12

## Results, Refills, and Critical Communication



Parvinder Sheena Khurana, Chad Henson, and M. Danielle King

### Introduction

Professionalism is an essential clinical competency, and several sub-competencies within professionalism are linked to prompt communication with patients and caregivers. Timely, accurate, and effective communication of results, provision of medicine refills, and appropriate response to telephone and electronic messages are essential components of continuity of care and patient rapport. In addition, the recommendations in this chapter will address the Accreditation Council for Graduate Medical Education (ACGME) core competencies as follows:

PROF 1: “Has professional and respectful interactions with patients, caregivers and members of the inter-professional team.”

PROF 2: “Accepts responsibility and follows through on tasks.”

PROF 4: “Exhibits integrity and ethical behavior in professional conduct” [1].

The Joint Commission has prioritized safe and timely notification of critical test results as a National Patient Safety Goal [2]. In 2010, they released eight recommendations for policies for communicating abnormal results, including a clear definition of urgent results, a precise outline of provider responsibilities, specific

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procedures for fail-safe communication, and detailed policy for reporting test results, including an acceptable length of time between resulting and reporting as well as whether verbal reporting should be required. In addition, the physician satisfaction survey from CG-CAHPS (Clinician and Group Consumer Assessment of Healthcare Providers and Systems) contains questions on whether patients receive their lab results. The implicit dictates of professionalism as well as the explicit expectations of these accreditation bodies and our patients demand that the clinic director plans for how care between visits will be addressed by trainees and their supervising attending physicians.

## **Learning Objectives**

1. To describe acceptable strategies for communicating results in the clinic setting, including timing, method of communication, and documentation.
2. To identify challenges for coverage of absent residents and describe strategies to improve workflow through documentation and communication.
3. To describe processes for handling refill requests for chronic medications and identify those requiring clinical evaluation.

## **Outline**

- Communication of Test Results: Nonurgent and Urgent Results
- Covering for Absent Residents
- Barriers to Result Communication
- Handling Refill Requests
- Trainee Professionalism Between Visits

## **Communication of Test Results**

The goal of this section is to provide recommendations regarding resident result communication to patients. While protocols and expectations can vary between institutions, these recommendations may be used as a launch pad to develop institution-specific guidelines tailored to local needs. It should also be recognized that no single method could work for all circumstances. Differences in clinical urgency and patient preferences may necessitate that protocols encompass more than one option for communication of results [3].

Patients should be told to expect to hear about all test results and not to assume that “no news is good news” [4]. This not only increases patient satisfaction, but it also facilitates the development of a safety net by prompting patients to call for results if they have not heard from their clinic within a specified amount of time.

### ***Nonurgent Results***

- (a) *Definition*: These results include normal results and abnormal results that do not need to be acted upon in an urgent timeline.
- (b) *Timeline*: Nonurgent results should ideally be communicated to patients within a week. A Veterans Health Administration directive states that, as a general rule, test results are to be communicated to patients within 7 days for those that require any action and 14 days for those that do not require any action [5]. Though an interval of 2 weeks is considered acceptable in most institutions, prompt notification eliminates phone calls from patients who are usually anxiously waiting for them.
- (c) *Common examples*: The most common nonurgent results are screening labs (e.g., lipid panel or hemoglobin A1c) and laboratory tests used for monitoring therapeutic interventions (e.g., chemistry panel for certain antihypertensive medications) when they are normal. Radiology, pathology, and cardiovascular studies with normal results would also fall in this category, along with those that have abnormalities but do not necessitate prompt action (e.g., cardiomegaly or emphysema on chest X-ray, mild valvular lesions or left ventricular hypertrophy on echocardiogram, adenoma on colonoscopy, etc.).
- (d) *Methods of communication*: Factors such as clinical impact of results, patient attributes such as anxiety level, and health literacy may influence the methods most suited for a specific patient to receive their test result [3]. At the office visit, residents should determine the preferred mode through which these results should be communicated (e.g., letters, specific phone numbers, patient portal, etc.). In case of nonurgent abnormal labs necessitating further action like change in medication or additional testing, direct communication through a phone call may be most appropriate. Nonsecure emails, text messages, or social media messages should not be permitted, as these routes of communication are considered to be noncompliant with the Health Insurance Portability and Accountability Act (HIPAA). Detailed voice messages should not be left on any numbers unless specifically requested by a patient. Under no circumstances should the results of sensitive tests such as sexually transmitted infection screening tests be left in a voice mail message. Messages requesting a callback or messages stating that “everything was normal” may be appropriate. If sending a letter, language should be easily understood by patient and preferably cite or enclose copies of results. It is acceptable to provide results of testing to persons designated by the patient under specific circumstances: this person is

designated in advance by the patient, this person's identity and contact information are documented in the medical record, and the designee is capable of providing positive patient identifiers in accordance with institutional policy.

- (e) *Documentation*: All intervisit communication, including phone communication, needs to be documented in the medical record and should include documentation of positive patient identification [2].

## ***Urgent Results***

- (a) *Definition*: These results include critical results and other noncritical abnormal results where prompt action is necessary. For lab results, a critical laboratory value is a test result that “represents a pathophysiologic state at such variance with normal as to be life-threatening if an action is not taken quickly and for which an effective action is possible” [6]. Each lab has its own definition of critical lab values and subsequent reporting policies. For tests such as imaging, pathology, cardiovascular studies, and other procedures, patients should be notified promptly if failure to intervene may adversely affect patient outcomes. Safe reporting protocols report critical results to a person in a specific position in the organization who is consistently on site rather than relying on calling these sensitive results to ordering providers who may spend significant time at other sites of practice. Two common protocols for critical result notification are a callback to the manager of the site of origin of the order, or a call to the attending physician on call. If a resident coverage system is in place at the institution, a third option is to have urgent callbacks go to that resident.
- (b) *Timeline*: The expected timeline for notification is variable and may depend on the specific result in question. It could be “immediate” for critical results to “2–3 business days” for urgent but noncritical results. Again, these are by no means rigid rules. These are suggestions on which to base program guidelines on. Trainees may not have sufficient clinical expertise to determine appropriate timelines for critical or urgent results of testing. This is an area that requires very deliberate consideration of safety and patients' perception of quality. Attending providers should have a very low threshold for taking responsibility for all critical results and any time-sensitive, urgent results they receive.
- (c) *Common examples*: These are abnormal results that necessitate prompt action on the part of the patient. Tests requested as part of a diagnostic work-up may also be considered urgent but noncritical as they are linked to greater patient anticipation of results. Some examples of critical results are severe anemia or critically abnormal electrolytes on lab tests, endocarditis or large pericardial effusion on echocardiogram, high-grade stenosis on a vascular study, new and suspicious mass on an imaging study, carcinoma on pathology test result, etc.
- (d) *Plan of action*: Residents should be encouraged to communicate with their attending preceptors with the plan of action for any anticipated results during the office visit and document this plan in their note for the encounter (e.g., what

if the creatinine is above this level or what if the potassium is higher than a certain number). This will allow for more efficient result communication. For unanticipated results that lead to management changes, residents should seek the advice of their attending preceptors in person or through the most efficient HIPAA-compliant system at their institution. Once determined, this can be communicated to the patient.

- (e) *Methods of communication*: To ensure receipt of results and to allow patients to ask questions regarding the follow-up plan, verbal communication is preferred. Detailed, sensitive, or alarming messages should not be left in a voice mail message. A follow-up appointment to clarify patient concerns or discuss next steps may be necessary. In certain circumstances, an in-person appointment may be the best method of relaying the result. Some examples include cancer or HIV diagnosis.
- (f) *Documentation*: As with all results, all patient communication needs to be documented in the medical record.

A summary of the suggested strategies discussed above is listed in Table 1.

**Table 1** Definition and suggested strategy for result communication

	Urgent results	Nonurgent results
Definition	Abnormal results that necessitate prompt action	Normal results and abnormal test results that do not necessitate prompt action
Timeline for notification	Immediate to a couple of days dependent on the critical nature of results	7–14 days
Method of communication	<ul style="list-style-type: none"> <li>– Dependent on patient preference</li> <li>– Synchronous communication like phone communication is preferable</li> <li>– Patient portal reasonable if receipt can be confirmed</li> <li>– Letter: acceptable</li> <li>– If unable to contact by the above methods</li> </ul>	<ul style="list-style-type: none"> <li>– Dependent on patient preference</li> <li>– All methods acceptable</li> </ul>

## Covering for Absent Residents

Standard processes for relaying test results when covering for residents who are on leave or off-site should be developed by residency programs in collaboration with the preceptor physicians at the sites of trainee clinics. These may vary from exclusive coverage by a supervising provider to a paired coverage resident. In X + Y systems, such coverage protocols may be more challenging to devise as there are multiple preceptors for each ambulatory resident. For programs with electronic

medical record (EMR) lab notification, there is usually an option to assign the supervising designee. The advantages of the system of defaulting the “absent” resident patient results to the supervising provider are that determining plan for a patient who has never been seen by the designated trainee can be very challenging and burdensome for the trainee, and these results can be managed more safely and efficiently at the attending level.

## Barriers to Result Communication

The single biggest barrier to result notification is structural – trainees may not be on site when results from testing become available. This is the natural consequence of the rotating nature of residency training. While the shift to EMRs has allowed for easier access through remote log-in, this alone does not completely negate the issue, and some sites have no option for remote log-in. Creating a consistent, unprompted professional habit to check alerts is critical but challenging for trainees, especially given the competing clinical duties across multiple systems. These barriers are further compounded by the lack of trainee competence in the area of professionalism *between visits*.

Furthermore, medical training has focused heavily on inpatient and procedural areas of medicine. Recognizing the need to improve resident outpatient skills, there have been several endeavors by accreditation organizations to facilitate an increase in the time spent by residents in ambulatory setting [7]. One such endeavor is availability of schedule innovations. With traditional residency schedules, there is tension between inpatient and outpatient responsibilities. The X + Y scheduling improves this experience with more division between these roles. However, this split scheduling has created new challenges of decreased continuity and coverage issues in the nonambulatory weeks [8].

When implementing the X + Y structure, it is important to note that program size and staffing demands are unique and that not every program can have the same coverage policy. One option is to anticipate that residents who are off-site will require coverage more often than those at the primary training hospital. Creating task coverage groups allows residents and their supervising physicians to have clarity on the responsible party for notifying patients of results and for covering phone calls. However, this may place too heavy a burden on the covering residents who are uncertain of care plans and who might feel uncomfortable managing patients they have not met. A more manageable strategy would be to require coverage only when residents were on vacation. In addition, residents should be encouraged to seek help whenever they feel they would be unable to check the EMR. Furthermore, the supervising attending physicians covering each group of residents should review the task list daily to identify ones that may be urgent or overdue.

Like residency programs, most medical schools also devote little to no time in their curricula to outpatient medicine, primary care, and dimensions of professionalism in non-face-to-face encounters. This can be addressed with an early, explicit

curriculum about the fundamentals of clinical practice in the outpatient setting as well as procedures and protocols that emphasize resident responsibility for panel management.

## Handling Refill Requests

*This document only applies to noncontrolled substances. Refills for controlled substances are covered in chapter “Safe Opioid Prescribing and Controlled Substance Policies”.*

### ***Refill Requests Requiring Appointments***

- (a) Patients who are acutely ill, including antibiotic requests.
- (b) Requests for new medications.
- (c) Patients who have never been seen in your department.
- (d) Patients who had multiple cancellations or who are past-due for an appointment. This is usually determined by the clinic administration and may vary based on clinical condition and patient and physician characteristics.

### ***Refills of Chronic Medications***

*Timeline of request fulfillment or patient communication:* per clinic protocol (recommend no longer than 3 business days)

*How many days’ supply:* For most patients who are stable on current medications, it is appropriate to give 90-day supplies, though some commercial insurances allow 90-day supplies only through mail order pharmacies. Medicaid and certain other state insurance programs may approve only 30-day supplies at a time.

*How many refills:* The number of refills authorized will depend on the medication requested, patient show and compliance history, and the last appointment.

*One year’s supply:* Prescriptions may be refilled for a year for most medications. Curtailment of the number of refills may be based on concern of certain patient behaviors, toxicity of medication, and/or need for intensive laboratory monitoring.

*Mail order prescription refills:* These can be refilled for a year (e.g., 90-day supply at a time and 3 refills), as long as the patient has a history of regular follow-up appointments and any appropriate lab tests.

*Medications prescribed by a specialist:* Refill requests should ideally go back to the prescribing provider. Patient may experience substantial frustration if these refill requests are not fulfilled. Trainees will benefit from communication training in these situations where they must decline these patient requests.

A summary of the suggested strategies discussed above is listed in Table 2.

**Table 2** Suggested strategy for refill of chronic medications (noncontrolled substances)

Timeline	1–3 business days Dependent on clinic protocol
Amount	90 days for most medications Subject to constraints based on insurance source
Number of refills	To be determined after considering safety profile of medication, patient adherence to monitoring (appointment show rate, lab completion, regimen compliance), and time since last appointment

## Trainee Professionalism Between Visits

As noted in the start of this chapter, professional behavior across multiple domains is at the center of safe, effective intervisit patient care. The first and obligate professional act required is that trainees actually *check* their notifications or results of tests, patient communications, and other administrative messages related to the patient. Many, if not most, training programs assign residents to rotations in multiple healthcare systems. Trainees will have to intentionally log into one or more EMR systems proactively while away from clinic. The clinic director must work with the academic program to create an expectation of the frequency of checking alerts (may be variously termed as messages, tasks, notifications, etc.), and this expectation should be transmitted to the trainees in a written format. Additionally, all dimensions of intervisit care require supervision, feedback, and support from academic faculty so that trainees can grow their skills in these areas. Reviewing alerts and responding appropriately are practices that must be intentionally developed. It should not be assumed that trainees know how to check alerts, know how to handle alerts, know how to talk with patients about results and refills, or know how to author a letter at the common level of reading comprehension to notify patients of alerts. Just as it is expected that medical knowledge and patient care are directly and indirectly supervised, there must be a plan for monitoring trainees' responses to alerts and the content of communication with patients. Most EMRs have abilities that facilitate this process. Examples include reports with date of last log-in, frequency of delinquent alerts, and generation of alerts to precepting physicians when a critical message is overdue. Though these reports add to administrative burden, there is value in spending resources to monitor this aspect of trainee performance. Performance in this area of clinical practice is measured as part of the ACGME core competencies and should be based on the generated data.

Trainees may feel pressure to give patients a way to contact them directly, their pager number, or their personal cell phone numbers, for example. The practice of providing some patients with direct access while others have none should be discouraged as potentially discriminatory. Furthermore, while most patients will treat this direct access respectfully, there clearly exists the potential for issues with respect to boundaries. If a patient case requires such substantial support that a trainee feels compelled to provide special means of contact, the supervising provider needs to become involved to engage whatever mechanisms of case management and social support the system has to offer.

## Conclusion

Most patient care visits result in the ordering of diagnostic testing, pharmacologic therapy, interventional therapy, or a combination of any of these. The very act of placing these orders is a commitment to be responsible in a clinical relationship with the patient. Survey data is clear that patients expect responsiveness from their healthcare team. As this is a professional skill that often develops in graduate, rather than undergraduate, medical education, policies should be developed to guide trainees in procedures for result notification and communication. The clinic director is tasked with ensuring safe, effective patient care that complies with accreditation standards and that provides a supportive framework for trainees to develop their skills. At these crossroads, a clinic director can expect pushback from essentially every direction: institutional leadership may seek to marginalize the importance of trainees in the care of patients based on both their status as trainees and their transient presence on site, training programs and trainees may verbalize concerns about the imbalance in workload versus education, and attending physicians may struggle to negotiate the need to allow trainees to field results and communications versus just dealing with issues themselves in a more efficient manner. The clinic director must be familiar with national, local, and site policies and standards and then gather all stakeholders together to create shared expectations and systems to respond to patients' needs.

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# Chapter 13

## Clinic Handoffs and Sign-Outs



Parvinder Sheena Khurana and Lee B. Lu

### Introduction

Year-end resident clinic handoffs or transfers occur when patients transfer resident primary care providers (PCP) at the time of resident graduation. An estimate of more than one million transfers is done annually [1]. Similar to inpatient handoffs, ambulatory clinic handoffs are critical transitions of care. Proper and diligent clinic handoffs are important to prevent disruption and delay of patient care, to ensure timely follow-up for chronically ill patients, and to improve patient satisfaction during the transition. According to Young et al., the year-end transfers have distinct elements which could lead to increased risk to patients [2]. First, during the transfer, patients may have worsening symptoms both emotionally and physically from the loss of a long-term relationship with their previous physician [3]. Second, different from the end of shift handoffs, the accepting physicians may be interns who have less clinical experience and administrative skills. Third, the year-end handoffs involve a large number of patients which can pose administrative and clinical challenges. Regardless, residency programs and individual resident continuity clinics must establish a standardized protocol for clinic handoffs to provide smooth transition with a goal of optimizing patient safety.

Recognizing the importance of transitions of care, the Accreditation Council for Graduate Medical Education (ACGME) mandates that internal medicine residency programs ensure and monitor the handoff processes. Transitions in care are a focus for the Clinical Learning Environment Review (CLER) [4].

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## Learning Objectives

1. Discuss the different models of the end of year clinic handoffs.
2. Identify ways to handle the challenges of clinic handoffs.

## Outline

- Basic Strategies
- Different Models of Clinic Handoff
- Clinic Handoff Protocol
- Challenges

## Basic Strategies

Many programs already use basic strategies to prevent new residents from becoming overwhelmed when assuming a large panel of new patients. Most commonly, interns are given fewer patients during each clinic session as well as longer appointment times. A variety of models of clinic handoff have been used by different residency programs and resident clinic medical directors. To our knowledge, literature is lacking comparing the different models. However, preparing residents and staff for the handoff process and effective doctor-patient communication skills are essential components for all models. The ultimate goal is to provide a smooth transition of care without causing delay to patient care, loss of patient follow-up, and patient dissatisfaction.

## Different Models of Resident Clinic Year-End Handoffs

### *Model A: Handoff to Interns*

One model is to transfer graduating resident patients to interns. The advantage of this approach is that interns begin their clinic experience with a pre-existing panel, thereby giving them a fulfilling and busy schedule right from the beginning of their residency. In addition, this model gives patients a 3-year period to stay with the same physician. However, there are disadvantages to this model. For residency programs with electronic medical record (EMR) system, follow-up appointments cannot be made until a few weeks before interns start and are officially activated in the EMR system. In this instance, patients who are seen by the graduating residents in April or first part of May cannot be given a follow-up appointment until interns start. Keeping track of these patients to ensure timely follow-up

appointments are made can be challenging. This may lead to loss of patient follow-up and delay of care. For continuity clinics with EMRs, graduating residents may have to designate a house staff who will receive their in-basket to make sure clinic laboratory and imaging results and all messages are timely followed up and reviewed during the transition period. In the beginning of the residency training, most interns are new to the EMR system and do not know how to handle clinic lab results due to limited clinic exposure. This may also affect how clinic lab results are handled and how patients are notified. An alternative approach would be to designate a clinic preceptor to receive EMR notification of lab results for each graduating resident. This approach is much safer and prevents undue burdening of the inexperienced house staff. However, in large residency programs with a large number of residents, it may be challenging for clinic preceptors to have to be responsible for so many EMR in-basket results. With this model, new interns may be overwhelmed by having to absorb a large patient panel from the graduating residents. Also, their initial small clinic template may not be able to accommodate the high demand from a large panel. Lastly, depending on the clinic schedule especially for residency programs with a X + Y model, some interns may not start seeing patients in their continuity clinic until mid-August which may delay patient follow-up for those who are chronically ill and require frequent visits. Thus, the success of this model is dependent on early entry of intern names into the EMR system so that appointments can be scheduled in a timely manner, a detailed intern orientation/protocol on how to handle patients' lab results especially for residency programs with EMR lab notification, and a strategy on how to deal with patients who need to be seen by the upcoming interns earlier than the first available appointments. Residency programs which do not use lab notification through the EMR must have a protocol on how to handle lab results during the transition period.

### ***Model B: Handoff to Second Year Residents***

Due to some logistic issues with transferring clinic panel to upcoming interns, some programs choose to assign the graduating residents' panel to the upcoming second year residents. This model offers the advantages of timely follow-up appointments because the upper-level residents are already in the EMR scheduling system and follow-up of lab results can be better handled as the upcoming second year residents are more experienced than interns. However, in some instances, the clinic panel may be too large for the second year residents who already have their own panel from their intern year. If this is the case, some patients may be distributed to other residents with a smaller panel and new interns. This may create more administrative and clinical burden for the graduating residents for having to sign out to different colleagues. Understandably, another disadvantage of this model is that in the absence of a panel to take over, new interns may not have enough patients scheduled to their clinic template in the beginning of the academic year; however, these open slots can

be used for new patients, established patients who need to be seen urgently when other upper-level residents' slots are full, and new patients from post emergency room discharge or hospital discharge. Depending on the demographic area where the clinic is located and if the demand for primary care is high, most programs which use this model have no difficulty with finding new patients for the new interns. Lastly, one of the greatest disadvantages of this model is the limited 2-year patient-physician relationship instead of 3 years for model A. This may lead to patient dissatisfaction due to frequent patient transfer.

### ***Model C: A Mixed Hybrid Model***

A mixed model is to hand off high-risk patients to senior residents, while the care of others can be safely taken over by interns. The advantage of this model is to ensure timely follow-up appointments for high-risk patients with senior residents who have more clinical experience in handling sicker patients than interns. However, the logistics of having to sign out with different colleagues is an additional burden to the graduating residents.

## **Clinic Handoff Protocol**

### ***Preparation for Clinic Handoff***

Whether the panel is taken over by an incoming intern or a rising second year, patient communication and preparation are the keys. Preparation begins at the program level to create a "clinic handoff list" assigning a specific intern and/or second year to take over the panel of a graduating resident. If possible, panel lists can be extracted with the help of the IT team at the institution. In addition, graduating residents should be provided with criteria to identify high-risk clinic patients such as those with numerous emergency room visits and/or hospitalizations and those with multiple medical conditions requiring frequent close follow-ups.

### **Ways to Inform Patients of the Transition**

1. Graduating residents verbally inform patients of their expected departure and tell them the name of their new PCP, if known.
2. If using model B, graduating residents may physically introduce the new PCP to patients.
3. Letters are sent to patients notifying patients of the name of their new resident PCP.
4. A telephone call by the graduating resident and the new resident PCP are additional ways to ease patients' anxiety about the transition.

Creating a standard template for sending a transition letter to the patient can be helpful for the residents [5]. Additions or amendments can be made to the template by them as necessary. The letter should begin with a few words of thanks for the patient, followed by an introduction of the person taking over the care. One example from George Washington University Residency Program is illustrated below:

*Dear Ms./Mr. \_\_\_\_\_*

*To begin, I would like to thank you for the trust you have given me over the last 3 years as your primary care physician. Taking care of you has been an honor for me.*

*As of June 30th of this year, I will be graduating from the residency program at \_\_\_\_\_ and therefore will no longer be able to provide care for you.*

*Please rest assured that many highly qualified residents and internists remain at the \_\_\_\_\_ who will be able to continue meeting your healthcare needs. In particular, I suggest that you follow up with Dr. \_\_\_\_\_, one of our new residents who I am sure you will build a good relationship with and will serve as your resident primary care physician. Of course, all of your medical records will remain in our electronic system, to ensure a smooth transition.*

*Thank you for allowing me to participate in your care. Best wishes for your future health.*

*Sincerely,*

## ***Clinic Handoff Between Residents***

Similar to inpatient handoffs, there are many possible ways to perform clinic handoffs between residents:

1. Write clinic handoff notes either electronically or on paper for high-risk patients or all patients if feasible. Notes must contain pertinent medical problems, important psychosocial issues, pending tests and consults, up-to-date preventive screenings, etc.
2. Send a list of high-risk patients through EMR in-basket or secured institutional Health Insurance Portability and Accountability Act of 1996 (HIPAA)-compliant email to receiving physician with a short summary of patients' condition and pending issues.
3. Call receiving physician(s) to verbally sign out the sick and high-risk patients.
4. Introduce the new physician face-to-face to patients, if possible. This would only be applicable to handoff to second year residents.

Despite different clinic handoff protocols, less than 50% internal medicine-pediatrics programs have outpatient handoffs in place [6]. In 2012, Donnelly et al. published a randomized study on 14 internal medicine-pediatrics residents into an interventional group or control group [7]. The interventional group received an email with specific instructions on how to write clinic handoff note highlighting the

pertinent information. The interventional group had an increased number of outpatient handoffs. In 2014, the same group did an intervention with a standardized template for clinic handoffs versus free text which did not show an improved quality of the handoffs [8]. In 2013, Pincavage et al. collected patient data after the baseline versus enhanced clinic handoffs. The enhanced handoffs included a 60 min resident training versus 30 min for the baseline handoff [9]. As a part of the training, residents were asked to notify patients in person in advance of transfer, clinic staff changed PCP in EMR, and a safety audit was done in October to make sure high-risk patients have follow-up appointments. The end results were that more patients were seeing the correct new PCP within the desired time frame and fewer patients missed the pending tests; however, the intervention did not improve the number of patients missing visits and lost to follow-up.

## Challenges

1. Lack of knowledge: Graduating residents may have limited knowledge on how to perform proper clinic handoffs. Clear expectations, standardized protocols, and educational training should be provided to graduating residents.
2. Large number of patients: Due to a large volume, the typical way of signing out all patients either electronically or on paper is logistically difficult. Thus, signing out only the high-risk patients is one option. Defining high-risk patients is essential.
3. Lack of time: Some residents may not have time to complete clinic handoff notes, call the receiving physician, and also send letters to patients. This gets magnified by the need of several graduating residents to take a vacation at the end of June to facilitate transition to their jobs or fellowships. Clinic directors and program directors should consider allotting administrative time to residents to perform year-end clinic handoffs.
4. Lack of monitoring: For programs with a large number of graduating residents, it is challenging to ensure that all graduating residents follow clinic handoff protocols and complete expected tasks. Assigning check out clearance to specific precepting physicians may be helpful.
5. Lack of timely clinic schedules: The clinic director must work with the residency program director to ensure that timely clinic schedules for the upcoming academic year will be available by the end of May. There are several issues that slow down the creation of timely schedules. Administrative delays stemming from accommodation of interns' requests and revisions of schedules are probably the biggest one. However, there are also factors beyond the role of the chief resident or the clinic director. Providers cannot be added unless license and DEA numbers are available. Efforts must be made with the Graduate Medical Education (GME) offices to expedite the providers that are not currently active. Creative solutions such as creation of a bridge or "dummy" provider schedules to accommodate continuous scheduling has also been tried at some institutions.

6. Lack of administrative support: The clinic director may not have a clinic scheduler to help keep track of sick patients to ensure timely follow-up appointments are made to the correct assigned receiving PCP during the transition period. In this case, a request for a clinic scheduler or an administrative assistant should be made.

## Conclusion

Year-end clinic handoffs can be quite challenging due to a large volume of patients and immense logistical problems with scheduling and keeping records of patients to ensure timely follow-up appointments are made. Therefore, standardizing clinic handoffs is critical to prevent delay and disruption of patient care, maximize patient safety, and maintain patient satisfaction during the transition period. Both ACGME and CLER emphasize that residency programs should have processes to ensure effective and smooth transitions of care.

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# Chapter 14

## Safe Opioid Prescribing and Controlled Substance Policies



Daniel G. Tobin and Ernie-Paul Barrette

### Introduction

The management of chronic pain is a responsibility of primary care physicians and, by extension, the medical residency continuity clinic. Chronic pain is quite prevalent; more than 100 million Americans suffer from chronic pain at an estimated cost of over \$600 billion each year in lost wages, reduced productivity, and medical expenses [1]. As a result, evaluating chronic pain is unavoidable, and its management is extremely important to the functionality and well-being of our patients. Unfortunately, the majority of medical residents graduate from medical school without any formal training in pain management [2], and there is a severe shortage of board-certified pain specialists to turn to for help [3]. Consequently, the Clinic Director plays an essential role to make sure that trainees and faculty have the appropriate education, tools, and support needed to treat chronic pain safely and rationally.

Sometimes chronic severe pain will require treatment with opioid therapy, although there are many associated risks, and their efficacy for the management of

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Author's Note: Although we focus on opioid prescribing throughout this chapter, many of the identified practice management principles also apply to other controlled substances (such as benzodiazepines, other sedatives, and stimulants).

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chronic non-cancer pain has been called into question [4]. Opioids should not be used as monotherapy and are best prescribed as part of a multimodal approach to managing pain that also includes physical activity (e.g., physical therapy), behavioral therapy (e.g., relaxation training, cognitive behavioral therapy), non-opioid analgesics (e.g., topical agents, acetaminophen, nonsteroidal anti-inflammatory drugs), and other adjunctive medications (e.g., serotonin-norepinephrine reuptake inhibitors, tricyclic antidepressants, antiepileptics) depending upon the underlying etiology of the pain syndrome [5]. Opioid prescribing is complex and requires proactive risk management to use safely. However, some patients do functionally benefit from their use, and we strongly urge against the generalized refusal to prescribe opioids as a matter of clinic policy. Instead, we challenge the Clinic Director to create an environment that enables faculty and trainees to prescribe as safely and effectively as possible.

## Learning Objectives

1. Review the role of opioid therapy in the management of chronic pain and the potential risks and benefits of their use in an academic medical practice.
2. Consider how practice variation impacts controlled substance prescribing safety as well as patient and provider satisfaction. Develop standard operational workflows to address this in a busy resident clinic.
3. Effectively utilize risk assessment and reduction tools such as controlled substance agreements, prescription monitoring programs, and urine toxicology testing in an evidence-based manner.
4. Explore best practices when discontinuing controlled substances, and implement communication strategies to minimize conflict while offering support to patients.

## Outline

- The Role of Chronic Opioid Therapy
- Risks of Opioid Prescribing
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  - Side Effects, Drug Interactions, and Overdose Risk
  - Diversion, Misuse, and Addiction
  - Prescriber Risk Factors and Errors
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- Controlled Substance Agreements
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- Stopping Opioids, Discharging Patients, and Discarding Unused Medication
- Final Opioid Checklist

## The Role of Chronic Opioid Therapy

Opioid analgesics may be appropriate for the treatment of chronic pain syndromes when pain is severe and negatively affects function and quality of life, and non-opioid analgesics do not sufficiently control symptoms [6]. When prescribed, opioids should be used as part of a comprehensive multimodal pain management plan that also includes nonpharmacologic and non-opioid therapy. Opioids should not be prescribed when contraindications are present (explored later in this chapter) or the risks associated with opioid prescribing cannot be managed safely or outweigh expected benefit. There are no specific “opioid appropriate” pain diagnoses, but there is scant evidence that opioids are helpful for functional pain syndromes such as fibromyalgia, and they are best avoided in that setting [7]. Additionally, there is increasing evidence that opioids are of limited utility in the management of chronic low back pain, and the American College of Physicians recently released a guideline discouraging providers from using opioids for that indication except when other treatment options have failed [8]. Importantly, chronic opioid therapy is sometimes ineffective for the management of chronic pain from any source, and studies on efficacy are frequently of small sample size, short duration, and observational, and most failed to assess for functional improvement [4]. As a result, the introduction of chronic opioid therapy should be considered a “therapeutic trial” that will only be continued if there is evidence of benefit for the individual patient that exceeds any evidence of harm [9]. Realistic expectation and goal setting with an emphasis on functional improvement is critical; providers should explicitly discuss this at the start of the therapy and reassess it frequently. We explore these concepts in more depth elsewhere in this chapter.

## Risks of Opioid Prescribing

The use of chronic opioid therapy (COT) for non-cancer pain syndromes has become common, despite the lack of robust efficacy data. In 2014, over 240 million opioid prescriptions were written in the United States, which is enough supply for every adult American to have their own bottle of pills [10]. Given the prevalence of chronic pain and the widespread use of opioids in recent years, both hospital-based and community-situated resident clinic practices will undoubtedly need to manage patients seeking opioid therapy.

Unfortunately, physicians are notoriously poor at predicting which patients will experience problems with opioid use, including who will misuse or divert their opioid prescriptions [11]. As a result, some risk must be assumed in all patients, and so-called universal precautions to mitigate risk should be implemented; we explore strategies to reduce risk later in the chapter. Without appropriate resident education, clear policies for prescribing opioids, and appropriate utilization of risk-reduction tools (e.g., signed treatment agreements, urine drug tests, and prescription drug monitoring programs), your clinic may become a magnet for drug-seeking patients. Earning a reputation as a “loose” prescribing clinic, even if only due to the habits of a few providers, risks an onslaught of opioid-seeking patients. This will undoubtedly strain clinic resources and become fatiguing. It also risks changing the focus of the practice away from general internal medicine. For these reasons, as well as the urgent importance of protecting patients from harm, it is critically important for the Clinic Director to develop and implement rational, controlled substance prescribing policies.

### *Side Effects, Drug Interactions, and Overdose Risk*

There are many known adverse effects from opioid therapy, including numerous side effects; drug interactions; a significant risk for diversion, misuse, and addiction (explored in the next section); as well as the frightening risk of potentially fatal overdoses.

Many of the potential side effects from opioids are common and predictable, and the prescriber should anticipate and manage them proactively whenever possible. For example, opioid-induced constipation is quite common and typically does not improve over time, so it may be prudent to utilize stool softeners at the start of therapy. Bulking agents should typically be avoided because opioid-induced intestinal dysmotility may increase risk for obstruction. When refractory and severe, peripherally acting mu-opioid receptor antagonists can also be used [12]. In contrast, nausea and vomiting is also common but may improve with continued opioid use, so reassurance is sometimes the only treatment required. However, these symptoms can be managed with antiemetics if necessary, and a trial of an alternate opioid may also improve symptoms.

Additional common side effects include itching (due to histamine release triggered by opioid agonism of mu receptors found on mast cells), urinary retention, sedation, and endocrinopathy. Antihistamines may improve mild itching and dose reduction, or trial of a different opioid may help with urinary retention. Sedation should be considered an early sign of overdose, and if present, the prescriber must reduce the dose immediately to lower the risk of respiratory depression. Endocrinopathy may result from reduced secretion of gonadotropin-releasing hormone from the hypothalamus and direct osteoblast inhibition, raising the risk for both hypogonadism and osteoporosis. Prescribers should consider screening for sexual dysfunction while on opioid therapy, and high-risk patients may need screening for osteoporosis [13]. A less well-understood potential side effect is opioid-induced hyperalgesia. When present, neuropathic pain symptoms such as diffuse hyperalgesia and allodynia develop or worsen with ongoing treatment [14]. This syndrome can be difficult to distinguish from inadequate management of the underlying pain syndrome. Unlike undertreatment, discontinuing opioid therapy should lead to resolution of these symptoms.

In addition to side effects, numerous drug-drug and drug-disease interactions also exist and should be considered before prescribing opioids. For example, if a patient has an underlying congenital long QT syndrome or is on medications that prolong the QT interval, opioids such as methadone should be used with extreme caution, if at all [15]. Similarly, tramadol and meperidine both lower the seizure threshold and should be avoided in patients with seizure disorder. Likewise, patients with advanced nephropathy should avoid using codeine and meperidine due to the risk of accumulating high levels of toxic metabolites. A full review of potential drug-drug and drug-disease interactions is beyond the scope of this chapter, but a wise prescriber will always consider these factors when initiating opioid therapy.

Overdose risk deserves special mention; as the prevalence of opioid use has increased over the past 20 years, so have deaths from unintentional overdoses. In fact, in 2009 unintentional overdose deaths exceeded motor vehicle accidents as the leading cause of accidental death in the United States [16]. The US Centers for Disease Control and Prevention (CDC) estimates that 78 people will die each day in America from an unintentional opioid overdose [17]. Furthermore, the risk for opioid overdose increases as the dose escalates; there is a greater than seven times increased risk of overdose death when using daily doses over 100 morphine milligram equivalents (MMEs) as compared with doses less than 20 mg [18]. The risk also increases when patients take benzodiazepines along with opioids, and the US Food and Drug Administration (FDA) recently included a “black box” warning on all opioid prescriptions cautioning against this combination [19]. Not surprisingly, the CDC recommends avoiding co-prescribing opioids and benzodiazepines whenever possible and suggests that the total daily combined opioid dose not exceed 90 MMEs in most circumstances [20].

## ***Diversion, Misuse, and Addiction***

The careful provider must understand, screen for, and recognize diversion, misuse, and opioid use disorders when they occur; risk modification strategies are described later in this chapter. Definitions are as follows:

*Diversion:* Patients acquire opioids with the intent to sell, barter, or simply share them.

*Misuse:* Use of opioids in a manner other than that intended by the prescriber. For example, patients may take opioids for pain but not as prescribed (e.g., intermittent use with variable or higher than prescribed dosing) or may use opioids for a different reason than intended (e.g., insomnia, other pain syndromes, or for intoxication).

*Opioid Use Disorder:* Compulsive use of opioids despite adverse consequences. Diagnosis requires 2 out of 11 criteria (see Table 1) within a 12-month period as defined in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* [21].

The incidence of opioid misuse and addiction in patients receiving chronic opioid therapy has been estimated in the scientific literature. A recent systematic review of 38 studies, 26% from primary care settings and 53% from pain clinics, estimated the incidence rates for misuse at 21–29% ([95%CI] 13–38%) and for addiction at 8–12% ([95% CI] 3–17%) [22]. There are very limited data specifically from the resident clinic setting, but presumably the incidence is similar. Thus, misuse and addiction are unfortunately both prevalent and highly impactful. The prudent Clinic Director will carefully consider this risk when developing practice policies regarding controlled substance prescribing.

**Table 1** Opioid use disorder

Problematic opioid use characterized by two or more of the following criteria within a 12-month period
1. Using opioids in larger amounts or for a longer duration than was intended
2. Continuing desire or unsuccessful struggles to cut down or control opioid use
3. Spending a lot of time obtaining, using, or recovering from the effects of opioid drugs
4. Having a strong desire or craving to use opioids
5. Failing to fulfill important obligations at home, work, or school because of opioid use
6. Ongoing opioid use despite interpersonal problems worsened by opioid drugs
7. Giving up or reducing important social, work-related, or leisure activities because of opioid use
8. Recurrent opioid use in situations when it is physically dangerous
9. Ongoing opioid use despite knowing that it is causing or worsening a physical or psychological problem
10. Opioid tolerance
11. Withdrawal symptoms when opioids are not taken

Mild, 2–3 criteria; moderate, 4–5 criteria; severe, 6 or more criteria

*Adapted from the American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* [21]

## ***Prescriber Risk Factors and Errors***

Physicians who overprescribe opioids commonly fall into one of the six “Ds”: (1) the physician’s knowledge base may be *dated*, (2) the physician may be *duped* by a patient and fall victim to a scam, (3) the prescriber may be *dishonest* and prescribe unsafely for personal gain, (4) the provider may be *disabled* and have developed “loose” prescribing habits because of their own experience as a patient, (5) the provider may be *distracted* by multiple demands on their limited time, and (6) the *defiant* provider may simply refuse to adhere to best practices [23]. The underlying drivers in each case may differ, and intervention should be personalized to the prescriber. Two specific factors frequently seen in an academic medical practice (but also encountered in other settings) deserve further mention:

*Inappropriate patient selection:* The resident may not consider appropriate indications and contraindications to chronic opioid therapy. For example, a resident may prescribe opioids to a patient with a functional pain syndrome not known to be opioid responsive, such as fibromyalgia [7]. Alternatively, the resident may prescribe to a high-risk patient without adequate risk screening or suitable multimodal therapy, functional goal setting, or clear diagnostic indications. Although risk assessment is imprecise and physicians have difficulty accurately making this assessment, there are validated tools available to help estimate risk and guide patient selection and monitoring. For example, the Screener and Opioid Assessment for Patients with Pain (SOAPP®-R) and the shorter and simpler Opioid Risk Tool (ORT) are screening devices often used for this purpose [24, 25]. The ORT assesses variables known to be associated with a higher risk of opioid misuse such as personal and family history of substance use disorders, younger age (16–45), comorbid psychiatric disease, and a history of sexual abuse to gauge individual risk. Depending on the assessed level of risk, the provider may choose to defer the use of opioids completely, increase safety-monitoring practices, or refer the patient to a specialist to assist with comanagement and risk mitigation. A high-risk patient may still achieve benefit from COT, but the prescriber needs to make sure that he/she has the resources and ability to ramp up monitoring as necessary or COT should not be prescribed. These calculators, and many other prescriber resources, are widely available on the internet. A resource for prescribers developed by Boston Medical Center called TOPCARE (Transforming Opioid Prescribing in Primary Care) is an excellent example; it can be accessed at <http://mytopcare.org/>.

*Inappropriate prescribing:* Due to inexperience and/or inadequate supervision, the resident may select too high a dose or too potent a drug as initial therapy or inappropriately prescribe an extended-release/long-acting opioid to a patient with an acute pain syndrome or insufficient opioid tolerance. The resident may also fail to account for drug-drug or drug-disease interactions, incorrectly convert one opioid to another, fail to use tamper-resistant prescription paper, issue unclear directions, or fail to follow state-specific legislation that limits how opioids may be prescribed (e.g., prescription quantity limits). Clinic preceptors need to be on the lookout for these common errors, and Clinic Directors are advised to anticipate and proactively manage these challenges. Another common prescribing error is failure to treat to a

realistic and functional analgesic goal. Due to issues of tolerance, overdose risk, and adverse effects, treating to a pain-free state is neither safe nor sustainable. Instead, pain treatment goals should be “S.M.A.R.T.,” defined as specific, masurable, action-oriented, realistic, and time-sensitive [26]. Additionally, escalation of opioid therapy should be based on a multidimensional assessment of progress toward an identified functional goal and not solely on a unidimensional pain score. For example, a three-item tool called the PEG (pain, enjoyment of life, and general activity) score has been validated for use in primary care settings and can be an excellent way to assess pain and monitor its response to treatment over time [27]. This tool assesses pain severity and functional impact during the prior week on a scale of 0–10 with the total PEG score being the average of those three variables. A successful pain management plan should lead to improving PEG scores, while an unchanged or worsened score suggests that opioid use is ineffective and requires adjustment. In some cases, a pain syndrome does not respond to COT, and in these circumstances, opioids should be tapered and discontinued.

## Uniform Practice Patterns

Even in a modest-size clinic, opioid prescribing practices should be standardized, or marked variation will occur among both the residents and their attendings. Without consistent expectations, patients with pain and/or opioid use disorder may gravitate toward “loose” opioid prescribing physicians, and a few providers may quickly acquire a pain- and addiction-focused patient panel. In contrast, some trainees and their preceptors may uniformly refuse to prescribe opioids even to low-risk patients, leading to a challenging and irrational dichotomy of opioid use. This will only be exacerbated as patients are annually reassigned from a graduating resident to an incoming intern. Cross-coverage becomes confusing, and as patients talk to each other in the waiting room, the practice may be accused of having a double standard.

This type of practice variation is very disruptive. Some fortunate resource-rich practices may have access to pain specialists, but they are generally rare. Nationally, it has been estimated that there are only four board-certified pain specialists for every 100,000 people with chronic pain, and many of those providers limit access to privately insured patients [3]. Additionally, we believe that learning to appropriately assess pain and manage opioid analgesia should be a part of every internal medicine resident’s postgraduate medical education.

With increased education, use of risk stratification tools, and consistent policy-setting that applies to all clinic providers and staff (including the residents, attendings, and nursing staff), everyone’s comfort with safe opioid prescribing will increase, and patients will benefit from a more rational use of chronic opioid therapy.

### ***Suggested Workflows to Decrease Practice Variation***

1. Educate interns early in their training. This should include education regarding commonly encountered clinical challenges such as (a) the established patient with poor pain control who has run out of non-opioid options, (b) the new patient already on high-dose opioids from another provider, (c) the established patient on opioids with poor pain control, and (d) the established patient on opioids with evidence of aberrant drug-taking behavior. Of course, it is equally important that faculty are similarly adept at handling these scenarios, and faculty development may be needed as well. Excellent curricula addressing these circumstances already exist and are frequently available free of charge. For example, the Safe and Competent Opioid Prescribing Education (SCOPE) course developed at Boston University to meet the FDA-mandated and grant-funded Risk Evaluation and Mitigation Strategy program required for extended-release/long-acting opioids has case videos freely accessible on their website at <https://www.scopeofpain.com/tools-resources/>.
2. Identify an internal expert (often the Clinic Director) who reviews selected cases when (a) discontinuing chronic opioid therapy, (b) restarting previously discontinued COT, (c) difficult cases are referred for administrative evaluation, and (d) patients on COT present to the emergency department with documented overdose. The Clinic Director should also periodically review cases for quality improvement purposes. Of note, this task can be beyond the skill set and resources of some Clinic Directors, so it is important to identify a group of local experts that can assist at your institution. In some cases, this may include an interprofessional team of physicians, nurses, behavioral health specialists, social workers, and administrators, among others.
3. Develop practice policies regarding when and how opioids will be prescribed. For example, some practices adopt a policy that chronic opioid therapy should not be started on the first office visit before a review of outside records, appropriate diagnostic testing, and pretreatment risk stratification is completed. In these cases, pretreatment evaluation may include a risk assessment using the previously described ORT or SOAPP<sup>®</sup>-R, urine toxicology testing to assess for the presence of unreported drugs, and documentation of clear functional treatment goals and informed consent, among other steps. Other practice workflows to consider may include (a) refill request policies (e.g., not after 4:30 pm on a Friday or no earlier than 5 days before the next refill is due), (b) after hours and weekend opioid prescribing rules, and (c) the practice-wide requirement to use safety monitoring and risk-reduction tools such as controlled substance agreements, urine drug screening tests, etc. These interventions are described in more detail in the sections that follow.

## Controlled Substance Agreements

Using a controlled substances agreement (CSA) can be helpful, is required in some states, and is reported to give providers greater mastery and comfort with opioid prescribing [28]. Many will call these pain “contracts,” but the preferred term is “treatment agreement” or something similar since the word “contract” is misleading, not legally enforceable, and may be unethical and erode trust [29]. These agreements have four commonly identified justifications: (1) to improve adherence, (2) to provide informed consent, (3) to meet legal risk-management requirements, and (4) to improve practice efficiency and outline office prescribing policies [30]. A recent systematic review showed that the use of treatment agreements along with urine drug testing modestly reduced opioid misuse [31], although other sources have called their efficacy into question [32]. Another benefit of using a CSA is that it allows the resident to review clinic policies and opioid prescribing expectations at the onset of opioid use.

Employing shared decision-making is essential so that the patient and the provider have a full appreciation of the relative risks and benefits of opioid therapy and can make an informed decision together. The best agreements will outline expectations for both the patient and provider regarding how to use and prescribe the medication safely, as well as reasons why opioids may need to be discontinued. Importantly, for shared decision-making to occur, the agreement must be written at a literacy level that is accessible to most patients [33]; many CSAs do not consider this. Thankfully, programs to assess readability statistics exist (including Microsoft Word), and a tool such as an estimated Flesch-Kincaid grade level can be used in addition to spelling and grammar checks when drafting a CSA or adopting one for use.

Importantly, CSAs should strive to present information in terms of safety and should avoid using stigmatizing language whenever possible. One ongoing point of controversy is the use of the term “narcotic” in CSAs. Clinically, the word narcotic is imprecise and may refer to substances other than opioids; the US Controlled Substances Act incorrectly lists cocaine as a narcotic [34]. Furthermore, the term is typically used to refer to drug control efforts or substance use disorders such as with police “Narcotic Task Force” divisions or “narcotic treatment programs.” Not surprisingly, there is a great deal of stigma associated with the word, and we strongly discourage its routine use. However, few patients will understand what an “opioid” is, and it may be appropriate to include the term in a limited way.

A quick Internet search for controlled substance agreements will bring up many examples of variable quality, including some that clearly do not adhere to the standards described above. Rather than simply adopting an existing agreement wholesale, we encourage Clinic Directors to consider the content, tone, and word choice of the CSA they use. One of the chapter authors recently wrote a paper that explored these issues and offered a template for low health literacy CSAs based on principles of shared decision-making; readers are encouraged to review that document for more information [30].

## State Prescription Monitoring Programs

Since 2002, Congress has provided funding to the US Department of Justice to support the development of state-specific Prescription Drug Monitoring Programs (PDMPs) [35]. In general, these programs require pharmacies to report the dispensing of controlled substances to a central database including information about both the prescription and the prescriber. As of May 2017, every state has its own functional PDMP except for Missouri (which has introduced legislation to create a PDMP at the time this chapter was written), although the design and functionality of the programs are variable. In some states, registration with and use of the PDMP are required by state law.

Prior to initiating opioid therapy and periodically thereafter, we strongly recommend that residents be required as a matter of clinic policy (regardless of law) to check their PDMP for a patient's refill history and to document this in the medical record. When used consistently, this very powerful tool can be extremely helpful at detecting evidence of doctor shopping and other scams.

## Prescribing Tips to Reduce the Risk of Misuse, Diversion, and Overdose

The way a prescription is generated and the choice of medication can affect risk of misuse. For example, prescription forgery risk can be reduced by using secure electronic prescribing when available and tamper-resistant prescription paper that resists alteration when it is not; tamper-resistant prescription paper is already required for Medicaid patients [36], and we recommend implementing this for all clinic patients, regardless of insurance type. Other good prescribing habits include writing out the number of pills dispensed instead of using numbers and avoiding trade-name-only prescriptions whenever possible; generic opioids typically have equal efficacy to their branded counterparts while also having a lower street value when the medication is diverted since it is less recognizable as “the real thing.”

Diversion can be challenging to prevent, but providers should directly counsel patients that opioids must never be used differently than prescribed and should never be shared with or sold to another person. This warning should also be included in the practice controlled substance agreement. State prescription drug monitoring programs should be checked before opioids are prescribed and then periodically thereafter to look for evidence of doctor shopping. Additionally, patients should be counseled to safely store their medications in a locked container that is out of sight and out of reach from children, housemates, and guests.

As previously mentioned, we also recommend using opioids only in conjunction with other non-opioid treatments as part of a comprehensive multimodal pain management plan, which is beyond the scope of this chapter. When used, coach trainees to prescribe the lowest dose of the least potent opioid that can sufficiently achieve

therapeutic goals. Additionally, analgesic goals and evaluation of potential adverse effects should be fastidiously reassessed at each visit. When it becomes clear that the risk of ongoing opioid use exceeds observed benefits, prescribers should carefully discontinue them.

There is no evidence that one opioid is consistently superior to others, but regardless of opioid choice, only short-acting opioid analgesics should be used in opioid-naïve patients to reduce the risk of overdose [20]. Prescribers should reserve long-acting opioids for patients with poorly controlled chronic (not acute or intermittent) pain syndromes despite the regular use of around-the-clock short-acting opioids. Safe use of extended-release/long-acting opioids is of such concern that the FDA developed a Risk Evaluation and Mitigation Strategy (REMS) program as part of a multifaceted effort to reduce the risk of harm [37]. However, even when using short-acting opioids, residents must consider their relative potency, half-life, and onset of action and should “go low and slow” when in doubt. Possible drug-drug and drug-disease interactions (e.g., long QT syndrome, respiratory depression, etc.) need to be considered as well, and most experts strongly caution against co-prescribing opioids and benzodiazepines because of the increased risk for overdose.

Additionally, when overdose risk is elevated (e.g., patients taking greater than 50 MMEs of opioids per day, patients using benzodiazepines with opioids, and patients with a history of prior overdose), the CDC advises prescribers to consider co-prescribing the opioid reversal agent naloxone, which can be lifesaving [38]. Residency Clinic Directors may consider requiring naloxone co-prescribing for patients on COT as clinic policy. Naloxone is not itself a controlled substance, doctors do not require any special certification to prescribe the drug, and in some states naloxone can be prescribed to patients and their families by trained pharmacists even without a doctor’s prescription. Prescribers are strongly advised to review the CDC guidelines for additional opioid prescribing best practices.

## Urine Drug Screening (UDS)

Urine drug testing is an indispensable tool when prescribing opioid medications. Some have expressed concern that UDS testing will negatively affect the patient-doctor relationship, but this is considered standard of care in pain medicine. When utilized for all patients on controlled substances and normalized as an expected part of safety monitoring, much of the stigma of urine testing can be mitigated.

The purpose of UDS testing is to detect illicit drug use and to confirm the presence of the prescribed medication. Drugs are concentrated in the urine, so UDS testing is an easy way to test for their presence in the body. However, the window of detection is limited to several days for most drugs, and urine is susceptible to adulteration or dilution. Unless directly observed, tampering may occur, and in some cases, other types of testing (e.g., hair, nails, oral fluid, and blood) can be used instead. However, urine drug testing is far more common.

## ***Types of Urine Drug Tests***

Most screening tests are immunoassays and are highly sensitive but can have limited specificity. Advantages of screening immunoassays include their wide availability (often as point-of-care testing), versatility (can test for numerous substances at once), and generally low expense. However, they provide qualitative results only and are susceptible to both false-positive and false-negative results, and most immunoassays for “opiates” will fail to detect synthetic opioids such as oxycodone, which must be ordered separately. For example, the commonly used CEDIA Opiate Assay cross-reacts with oxycodone at a concentration of 10,000 ng/mL only 3.1% of the time [39]. In contrast, confirmatory testing utilizing gas chromatography (GC) or liquid chromatography and mass spectroscopy (LC/MS) provide results that are quantitative and highly specific. However, they are more expensive, take longer to process, and are often “send-out” tests to reference labs.

If you are not an expert in the interpretation of UDS testing, consider scheduling an appointment with the director of the medical toxicology laboratory at your hospital. This person will be an invaluable resource in interpreting unexpected results and reviewing the limitations of the assays used at your institution. Ask them to review their testing protocol and their spec sheet for drug testing.

## ***How Often to Test***

One could argue that testing frequency be risk-based so that very low-risk patients may need testing only 1–2 times per year, and a very high-risk patient may need testing monthly. However, as previously mentioned, providers are very poor at predicting which patients will have abnormal/unexpected UDS results, and therefore this approach is limited [11]. Additionally, in resident clinics, the need for UDS testing can be easily overlooked or delayed due to inexperience, poor record keeping, or other factors; in some cases, the UDS is never checked. UDS testing should be done at the start of therapy and whenever aberrant behavior is suspected, but it needs to be done randomly and periodically after that as well. A reasonable compromise is to set a minimum frequency so that all patients must get a UDS at least once every 90 days. If your patient panel is moderately high risk, then this may be appropriate. In our experience, a rule to test approximately every 90 days typically results in three to five tests per year.

## ***Collecting Urine Samples***

In general, resident clinics do not have a dedicated UDS bathroom (i.e., no sink in the room, toilet water has blue dye added) as may exist for legal purposes (e.g., at the start of a new job). Instead, the staff and providers need to maintain a reasonable

index of suspicion for tampering so that it will not be missed. Medical assistants and/or nurses should be trained to ask patients to leave bags and coats outside the bathroom and to ensure that the patient is alone in the bathroom when the sample is collected.

To be valid, samples should be obtained without notice, and a patient should not be allowed to leave the office and return to provide the sample later. The patient should be asked when they took their last dose of the opioid and if they have missed any doses in the last few days. In addition, the patient should be asked if they have taken any other pain medications and if they have used any other prescription or over-the-counter (OTC) drugs in the last week; a patient may not think to tell us about a prescription containing codeine from their dentist. Importantly, the process of labeling the specimen cup must be clear. Many patients confronted with a positive UDS will claim that the samples were mixed up and the urine tested was not their own.

### ***Evidence of Urine Tampering***

Is the sample provided actually urine? Short answer: if it looks and smells like water, it probably is water. However, this should be confirmed by sending the sample for a urine creatinine. In most labs, a value of 5–20 mg/dL is consistent with a very dilute specimen, but a value less than 5 mg/dL is not consistent with urine [40]. Other tests including measures of temperature and pH can also be helpful. Some clinics have also purchased cups with a built-in thermometer to confirm the specimen is freshly voided. Many commercial labs perform validity testing by measuring the sample for urine creatinine, for specific gravity, and for oxidizing adulterants. Labs that do this will have rules to reject samples based on these results.

### ***What Drugs to Test and When to Order Confirmatory Testing***

Most commercial UDS tests for drugs of abuse include amphetamines, benzodiazepines, barbiturates, cannabinoids, cocaine, opiates, and phencyclidine. As noted previously, most screening immunoassays will provide qualitative results only, and synthetic or semisynthetic opioids such as oxycodone, methadone, fentanyl, and buprenorphine need to be ordered separately. Heroin is not detected directly but is quickly metabolized to 6-acetylmorphine which is then rapidly metabolized to morphine. Most labs include 6-acetylmorphine in their assay, but due to its short half-life, often only morphine will be detected. Thus, patients prescribed morphine but using heroin can be difficult to identify.

Depending on the reason why testing is being done, providers may have the option to order reflex confirmatory testing. In this case, if the screen tests positive for a class of drug, then confirmatory testing will automatically be performed. In gen-

eral, assays for cocaine and cannabinoids are highly specific with few false positives, so additional testing for those substances may not be necessary. In contrast, amphetamines and opiates may have false-positive and complex results plagued by cross-reactions, so confirmation testing is critical. If reflex confirmatory testing is not ordered, the resident will need to keep on top of the immunoassay results and order confirmatory testing promptly as samples may only be valid for a couple of days.

### ***How to Handle a Positive UDS for a Non-prescribed Drug***

The presence of a non-prescribed controlled drug on a UDS can be unexpected and needs to be carefully considered in each case; human or lab error is always possible, and identification of a metabolite or a false-positive result from another substance can occur. For an unexpected result that may result in a major change in treatment (e.g., discontinuation of the opioids), retesting of the same sample by the lab may be performed. Most labs will hold the specimen for a few days and should be able to duplicate the initial result with retesting. In our experience, the lab will only rarely find that a technical error had occurred. If there is continued uncertainty, the sample can also be sent to an outside reference lab. Except under unusual circumstances, we generally do not recommend requesting another sample of urine when results are unexpected because advanced notice of testing may allow a patient to defeat the test through a variety of scams.

If the sample repeatedly tests positive for a non-prescribed drug, the patient should be questioned about the finding. Most addiction experts recommend that evidence of current high-risk illicit drug use (e.g., cocaine, methamphetamine, PCP, or heroin) result in discontinuation of prescribed opioids, although practices vary in their approach and may sometimes allow for an isolated episode of misuse with increased monitoring and/or treatment of an underlying substance use disorder. Clinic Directors should consider the best approach for their practice and may want to codify it in a practice policy to improve prescribing consistency, although variability between specific patient cases and circumstances may make this challenging.

Sometimes when confronted with urine test results that indicate the presence of a non-prescribed or illicit drug, patients will offer a variety of creative excuses. We list some below along with a brief analysis of the provided excuse:

1. *Amphetamine*: “I bought a weight loss pill on the internet” or “I borrowed a pill to help me concentrate at work/school.” Both responses, if true, represent unsafe use of non-prescribed substances and make the ongoing use of prescribed opioids far riskier. A well-written controlled substance agreement will outline this.
2. *Barbiturates*: “Someone gave me something to settle my stomach” (e.g., Donnatal—atropine/hyoscyamine/scopolamine/phenobarbital) or “I borrowed a friend’s headache medication” (e.g., Fioricet—butalbital/acetaminophen/caffeine). Using other people’s medications is very dangerous and risks

sometimes-fatal drug interactions and overdose. Opioids cannot be used safely in this circumstance. This too should be outlined in a controlled substance agreement.

3. *Benzodiazepines*: “I borrowed something from a relative to help me sleep.” Same analysis as above.
4. *Cocaine*: “I was in an apartment when someone was smoking crack.” Very intense exposure to secondhand cocaine will result in detectable but low levels in the urine. Typically, these have been reported to be below the screening cutoff of the immunoassay. If the assay is positive, it is likely they used the cocaine themselves.
5. *Marijuana (cannabinoids)*: (1) “I was in a room when someone was smoking marijuana,” (2) “I used to smoke marijuana but haven’t in a few weeks and we just started my pain pill last week,” or (3) “medical marijuana is legal in my state anyway.” There are several studies that show even heavy secondhand exposure will not cause the usual assay cutoff of 50 ng/mL to be positive, and this excuse is not acceptable for workplace testing [41–43]. If positive, assume the patient inhaled. Importantly, heavy habitual users of marijuana can have urine that tests positive for weeks or even months after their last use, so the excuse given in the second example is possible. Finally, medical marijuana typically requires either a prescription or physician’s certification, and without those, use remains illegal. Unless the patient lives in a state where recreational marijuana is legal, this is an invalid excuse.
6. *Opiates*: “I had some left-over cough syrup with codeine,” or “I was visiting my relative and they offered me one of their pain medications because my back was hurting more than usual.” As with the above examples, using other people’s medications is dangerous. Using previously prescribed medications that contain opioids is a more challenging circumstance, but at a minimum, the patient needs to be reeducated about the risks for drug interactions and the importance of safely discarding leftover medication. If the decision is made to continue opioid therapy, in most cases, patients should be advised that further episodes of non-prescribed drug use will result in stopping their opioids.

Sometimes urine drug tests will be unexpectedly positive for a non-prescribed drug because of normal metabolism. Prescription opioids are heavily metabolized, and the UDS will often detect not only original drug but also its metabolites. In contrast, as noted previously, heroin is not directly detected by urine testing and is very quickly metabolized to morphine. Unless the intermediate metabolite 6-acetylmorphine is detected, it can be extremely difficult to discriminate between heroin and morphine use. The interpretation of positive urine drug test findings can be very challenging; the previously mentioned resource TOPCARE developed at Boston Medical Center offers an excellent drug interpretation support tool that can be accessed at <http://mytopcare.org/udt-calculator/> (Table 2).

**Table 2** Examples of detectable urine metabolites

Parent drug	Metabolite(s)
Codeine	Morphine, hydrocodone, hydromorphone
Heroin	6-acetylmorphine, morphine
Hydrocodone	Hydromorphone
Methamphetamine	Amphetamine
Morphine	Hydromorphone
Oxycodone	Oxymorphone

### *How to Handle an Unexpectedly Negative UDS*

An unexpectedly negative UDS can be due to several factors, and interpretation of results can be tricky.

For example, very low doses of some opioids may lead to a level measured in the urine that is below the threshold required for a qualitatively “positive” test. Sometimes the laboratory will be able to provide additional information or testing when this is in question. In some labs, this can be a particular problem with oxycodone since certain assays have a much higher cutoff level for a positive result with oxycodone than for other opioids.

Another reason why the UDS can be unexpectedly negative is that the wrong test was ordered. As noted above, synthetic and semisynthetic opioids are not typically detected in an opiate immunoassay, and therefore oxycodone, fentanyl, and other such drugs may need to be ordered separately. One potential solution is to work with your institution’s laboratory and electronic medical record teams to develop “bundled” order sets that include naturally occurring opiates along with common synthetic and semisynthetic drugs into a single screening panel.

Sometimes the UDS is negative because the substance is not in the patient’s body, but even in those cases, interpretation can be challenging. Did the patient use up the medication sooner than directed? Is the patient using the medication on an “as needed” basis and had not taken the medication in several days? Is the patient worried that you will discontinue their prescription and is inappropriately hoarding their medication? Is the medication being illegally diverted? Trainees need to consider all these possibilities and personalize their approach to each patient.

### *UDS Special Circumstances*

1. *Methamphetamine*: In some parts of the country, methamphetamine use is very common. Although methamphetamine is available as a prescription drug, it is very rarely prescribed. If a patient were taking this as a prescription, a careful

history before prescribing opioids should discover this. In general, a UDS positive for methamphetamine will also confirm the presence of amphetamine, its metabolite, and this result should be interpreted as methamphetamine misuse. There is one uncommon exception! Over-the-counter Vicks Vapor Inhaler has the active ingredient levomethamphetamine which is the L-enantiomer of methamphetamine. The L (levo) isomer is felt to have no addictive potential and no central nervous system effects. However, repeated use of this nasal inhaler may result in a urine level that confirms the presence of methamphetamine. Most commercial assays will not discriminate the D (dextro) and L (levo) forms, although there is an assay available to do this. If a patient unexpectedly has a UDS positive for methamphetamine, the patient should be asked if he/she is using any other OTC medications. We have discovered two patients this way that had started to use Vicks Vapor Inhaler and had a false-positive UDS.

2. *Heroin*: Heroin is very rapidly metabolized (in minutes) to 6-acetylmorphine (sometimes reported as 6-monoacetylmorphine) and then to morphine. For this reason, UDS assays do not test for heroin but should test for the metabolite 6-acetylmorphine. The confirmed presence of 6-acetylmorphine is absolute proof of heroin use unless there has been a lab error. Beyond this very brief window, only morphine will be detected.
3. *Poppy seeds*: Poppy seeds contain small amounts of morphine and much smaller amounts of codeine. Eating usual amounts of foods with poppy seeds will not typically cause a UDS to detect morphine, but this rarely may occur with unusual diets. A large amount of morphine in the urine would probably not be explained by even excessive poppy seed consumption.
4. *Methadone*: Methadone may be prescribed for pain. Not all UDS assays will include a test for methadone, and the immunoassay screen for opiates will not typically detect methadone. Thus, a patient only on methadone for pain should be “opiate” negative on most assays and methadone positive when tested separately.

## **Stopping Opioids, Discharging Patients, and Discarding Unused Medication**

Some providers wrongly assume that stopping opioids also means the patient should be discharged from the clinic. A decision to discontinue opioid therapy because the benefits no longer outweigh the risks should not equate to reflexive termination from the practice. Threats of violence and other inappropriate behaviors toward providers and staff may warrant discharge, but this should be evaluated distinctly from whether opioids are still safe to prescribe. In some circumstances of inappropriate but less egregious behaviors, an experienced clinic manager can meet with the patient and review what behavior is acceptable. Such efforts should be well documented, and a formal letter of warning to the patient should be issued.

Problematic behaviors surrounding opioid prescribing are often driven by addiction. The management of addiction is rapidly becoming a problem that can be treated in the primary care setting [44]. However, even if your clinic is not equipped to treat addiction, residents should continue to provide primary care and refer patients to appropriate addiction treatment. Once an active addiction is identified, prescription opioids for chronic pain management should be stopped except under very unusual circumstances.

It should be noted that evidence shows approximately 65% of those who are started on COT will still be on opioids years later [45]. In the study, this was especially true when high-dose opioids were prescribed (greater than 120 morphine milligram equivalents per day). One should strongly consider this before starting opioids in the first place.

### *How to Discontinue Opioids*

There are many factors to consider when deciding when and how to discontinue opioids, but in general a taper of 10% of the original dose per week is usually well tolerated with minimal physiologic adverse effects [46]. However, more rapid tapers are sometimes appropriate, and in some circumstances, opioids should be abruptly discontinued. We offer a few specific examples below:

1. *Use of high-risk illicit drugs:* When deciding to stop opioids because the patient is actively using high-risk illicit drugs such as cocaine, heroin, and methamphetamine, it is reasonable to rapidly taper the patient off opioids. If the prescribed opioid is not detected in the urine (presumably due to diversion), then there would be no indication to taper at all. This discussion should take place face to face, and referral for addiction treatment should be offered. Primary care should still be provided, and non-opioid analgesics can be used to manage chronic pain.
2. *Use of lower-risk illicit drugs (i.e., marijuana):* Your clinic should decide on a policy regarding how to handle patients who test positive for lower-risk illicit drugs such as marijuana. You will need to decide on your threshold for allowing a second chance, but this should be standardized across the practice and applied uniformly. Remember too that former heavy marijuana users may have a UDS positive for cannabinoids weeks to months after they no longer use as previously described. When discontinuing opioids because of lower-risk illicit drug use, we recommend a slow taper of approximately 10% per week as described above. Non-opioid pain medications should be optimized.
3. *Diversion:* When diversion is detected, opioids must be stopped immediately, and there is no need for a taper or additional prescription. Knowing diversion is taking place but continuing to prescribe risks violating federal and/or state law [47].
4. *Aberrant behaviors:* These include refusal to provide a urine for drug testing, missed appointments, frequent emergency department visits for chronic pain, refusal to take any medication other than opioids, repeatedly losing their

prescription, etc. Many of these behaviors in isolation appear minor, but in some patients, a pattern emerges. Repeated aberrant behaviors that do not correct with direct feedback may warrant discontinuation of COT. *Plan –: Meet with the patient. Explain that the clinic will no longer be able to continue the opioids due to the repeated aberrant behaviors despite corrective warnings. An opioid taper is often appropriate. Maximize pain treatment with non-controlled medications.*

5. *Poor risk-benefit ratio:* There will be patients with poor pain control despite continued and often escalating doses of chronic opioids. In some cases, no improvement in day-to-day function can be documented. Many of these patients will demonstrate tolerance with escalating doses over time. Others develop progressive pain suggestive of opioid-induced hyperalgesia. If you assess that the benefit to the patient appears to be less over time or the benefits no longer outweigh the risks, a decision to stop the opioids should be considered. Since the patient will be dependent on opioids, any suggestion of stopping will likely be met with great resistance. They may have had prior episodes of running out of medication, experienced withdrawal symptoms, and may be fearful this will happen again. *Plan: Meet with the patient to review your concerns that the benefits of opioid use no longer clearly outweigh the risks. Discuss options to maximize pain treatment with non-controlled medications. Outline a plan to taper off opioids slowly enough to avoid withdrawal symptoms, and treat any withdrawal symptoms that occur with clonidine or other adjunctive medications.*

When opioids are discontinued, it is very important that they be discarded in a safe manner. Leftover supply should not be stored because this increases the risk for theft, diversion, and future overdose. Instead, unused drug supply should be disposed of in accordance with various federal, state, and local recommendations. The FDA suggests flushing unused supply down the toilet, while some states and municipalities prohibit this practice for fear that the drug will enter the water supply [48]. Instead, the unused medication can be adulterated with an unappealing substance (e.g., soil, coffee grounds, used kitty litter), the container sealed, and the bottle placed in the trash. Many police stations and some other facilities also offer a place to securely deposit leftover medications for incineration, and some pharmacies also provide a process by which unused medications can be returned for safe disposal. Clinic Directors are encouraged to become familiar with the regulations and resources in their area.

Importantly, the decision to discontinue opioid therapy can be emotionally difficult for some patients, and there is a high risk for confrontation during this time. However, by approaching the conversation with empathy, avoiding stigmatizing language, explaining decision-making in clear and transparent terms, and adhering to a risk-benefit framework, these can be successful encounters. These issues were explored in more depth in a recent article written by one of the chapter authors, and readers are advised to review that source for additional information [9].

## Final Opioid Checklist

1. *Are opioids indicated?* Opioids should be used in the treatment of chronic severe pain that results in functional disability and has not responded to other non-opioid treatment options. Opioids should be part of a multimodal treatment plan, and the underlying diagnosis should be fully evaluated. In general, avoid opioids in the treatment of fibromyalgia and other functional pain amplification syndromes since the benefits rarely outweigh the risks.
2. *Are opioids contraindicated or unacceptably risky?* Screen for evidence of untreated depression, suicidality, and active addiction. Consider using validated risk-screening tools such as the Opioid Risk Tool to assess for the risks of misuse. Do not use opioids when the risks outweigh the benefits. Validate test results and outside medical records before starting opioid therapy. Check your state's prescription drug monitoring program before prescribing opioid therapy, and document this in the patient's chart, particularly in states where checking the PDMP is required by law.
3. *Establish informed consent and clear practice policies.* Utilize controlled substance agreements and shared prescribing expectations across the practice and for all patients receiving controlled substances. Make certain that the patient understands the relative risks and benefits of opioid use, and engage in shared decision-making to establish functional goals of use.
4. *Monitor safety:* Utilize state prescription drug monitoring programs, urine drug testing, pill counts, and other tools to be sure that opioids are being used only as prescribed and as safely as possible.
5. *Know when to stop:* Stop prescribing when the benefits no longer outweigh the risks. Abandon the treatment option, not the patient. Refer or implement addiction treatment protocols when appropriate.

## Conclusion

Opioid therapy is a very powerful tool in the management of chronic pain that can offer relief to selected patients but is also fraught with danger, particularly when used differently than prescribed. Opioids should only be prescribed when the perceived benefits are assessed to outweigh evidence of risks and harms, at the lowest effective dose, and for the shortest duration that is medically necessary. However, when carefully used as part of a multimodal approach to pain management that also includes nonpharmacologic and non-opioid therapy, patients may benefit. Careful, rational, and deliberate prescribing is critical, as is the use of risk-management tools and thoughtful documentation in the medical record. Clinic Directors must work with their trainees, faculty, and clinic staff to develop an organized approach to opioid prescribing and should remain vigilant for inconsistent opioid use patterns

among their providers. Faculty development, resident education, and awareness of the ever-evolving regulatory environment are of utmost importance, as is keeping abreast of the medical literature as our understanding of safe opioid use continues to evolve.

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**Part IV**  
**Education**

# Chapter 15

## Ambulatory Curriculum Design and Delivery for Internal Medicine Residents



Margaret C. Lo, Alia Chisty, and Emily Mullen

### Introduction

The Accreditation Council for Graduate Medical Education (ACGME) issued significant requirement changes in 2009 for one-third of residency training to occur in the ambulatory setting [1]. The Alliance for Academic Internal Medicine (AAIM) and ACGME have advocated for decreasing the conflict between inpatient and outpatient experiences [1, 2]. These changes emphasize the need for the graduate medical education (GME) system to revitalize residents' ambulatory education.

Reform of ambulatory training in internal medicine is twofold. First, it requires improving the system infrastructure of the clinic itself, and secondly it mandates enhancing the educational experience of residents within the clinic [3]. Part of that movement includes a longitudinal ambulatory curricular design that enhances the resident continuity clinic experience and provides residents with a foundation for learning ambulatory medicine. Most ambulatory medical education is structured into three curricula designs—ambulatory block rotations typically embedded through  $x + y$  scheduling, longitudinal continuity clinics, and ambulatory long

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blocks. Ambulatory blocks arranged in an  $x + y$  model provide a 1–2-week concentrated clinic experience in various ambulatory disciplines. Longitudinal continuity clinics allow the opportunity to manage a panel of patients on a weekly basis over the entire training period. The innovative ambulatory long blocks entrench residents in a 6–12-month ambulatory clinic immersion. More details on these ambulatory curricular designs are on chapter “Traditional and Block Scheduling Challenges and Solutions for Internal Medicine Residents.” Many resident continuity clinics provide some type of on-site instructional modality, usually as a preclinical conference or an ambulatory case-based discussion to disseminate a core curricular thread of high-yield ambulatory topics [3]. Residency clinic directors and program leadership have a responsibility to ensure a well-rounded longitudinal ambulatory experience focused around achievable learning objectives.

## Learning Objectives

1. Gain knowledge of the three major ambulatory curricular designs—ambulatory block rotations, longitudinal continuity clinics, and ambulatory long blocks.
2. Learn the key principles and instructional modalities effective in ambulatory curricula.
3. Provide a step-by-step guide and sample toolkits to develop and implement a robust ambulatory curriculum at one’s home institution.

## Outline

- **Educational Principles and Steps in Ambulatory Curriculum Design**
  - Curriculum Steering Committee for Educational Planning and Problem Identification
  - General and Targeted Educational Needs Assessment
  - Goals and Objectives for Continuity Clinics in Relationship to ACGME Competencies
  - Educational Strategies: Structured Core Curricular Content and Delivery Strategies
  - Implementation with Bidirectional Evaluation and Feedback
  - Ambulatory Faculty Development Needs
- **Ambulatory Curriculum Delivery**
  - Core Curricular Content
  - Teaching Methods/Instructional Strategies: Formal Instruction

Small Group Sessions  
 Ambulatory Morning Report  
 Evidence-Based Learning

Ambulatory Journal Club  
 PICO Reports

Structured Clinical Observations

CEX/Mini-CEX

Patient Simulation Exercises

- Teaching Methods/Instructional Strategies: Resident-Directed Learning

Team-Based Learning (TBL)

Problem-Based Learning (PBL)

Flipped Classroom

Web-Based Learning Modules

Quality Improvement Instruction and Application

- **Ambulatory Curriculum Design and Venue**
- **Developing an Ambulatory Curriculum in One's Own Academic Clinic**
  - Step-by-Step Guide of Essential Elements in Developing an Ambulatory Curriculum
  - Existing Ambulatory Curricula

## **Educational Principles and Steps in Ambulatory Medicine Curriculum Design**

Valuable resources exist to guide faculty in the development of medical education curriculum. Three well-cited books include *Curriculum Development for Medical Education: A Six-Step Approach* by Thomas et al. [4], *Community-based Teaching: A Guide to Developing Education Programs for Medical Students and Residents in the Practitioner's Office* by the American College of Physicians [5], and *The Toolkit Series: A Textbook for Internal Medicine Education Programs* by the Alliance for Academic Internal Medicine [6]. Online resources are also available in three major categories to assist educators in curriculum development—resources from medical accrediting organizations [i.e., Association of American Medical Colleges, American Board of Internal Medicine (ABIM), Accreditation Council for Graduate Medical Education (ACGME)], topic-specific resources, and general medical education journals [7, 8].

A robust ambulatory medicine curriculum relies on a number of key principles and essential steps in educational curriculum planning as detailed below and in section “Conclusion.”

### ***Curriculum Steering Committee for Educational Planning and Problem Identification***

One faculty individual should be identified to oversee the ambulatory curriculum development process. Alternatively, the role can be shared by a couple of individuals, e.g., associate program director and clinic director. This person(s) is responsible for the day-to-day logistical planning of the curriculum, including scheduling of the curriculum in residents' continuity clinics, recruiting relevant presenters, and ensuring collection and aggregation of curriculum evaluation. A curriculum steering committee of key ambulatory stakeholders should also be established to provide input and identify deficits or problems in the ambulatory curriculum. This committee focusing on improving ambulatory education will continually review and update the curricular content at least annually. This committee is distinct from the Program Evaluation Committee of the residency program. Key stakeholders should include the residency clinic directors, clinic preceptors, ambulatory chief resident, and residency program director. The latter two individuals make certain that the clinic curriculum aligns with ACGME requirements and is well-integrated into the residency program.

### ***General and Targeted Educational Needs Assessment***

The needs assessment process is an important step to inform relevant curricular content and design. This step must involve not only a general analysis of the institution's educational and programmatic needs but also a targeted assessment of learners' needs [4, 8]. This requires alignment of the program's curriculum to ACGME/ABIM mandates and expert recommendations from major medical education organizations. Both general and targeted needs assessment can be done through various methods including, but not limited to stakeholder surveys, town hall meetings, focus group discussions, individualized faculty or resident interviews, In-Training Exam (ITE) performance on ambulatory topics, direct observation of stakeholders' skills, and audits of current stakeholders' performance. Additional curriculum needs assessments must conclude with a review of the literature for related ambulatory education curriculum and a collection of all the available resources. Appendices 1 and 2 provide samples of general and targeted needs assessment templates for ambulatory curriculum development.

## ***Goals and Objectives for Continuity Clinics in Relationship to ACGME Competencies***

The ACGME requires all training programs to develop specific goals and objectives for their ambulatory clinic curriculum. Goals are set in SMART format—specific, measurable, attainable, relevant, and timely [9, 10] (Table 1). Specific learning objectives make goals more concrete, prioritize curricular content, allow for direct evaluation, and tailor the individual clinic learning [8].

Goals and objectives for any ambulatory clinic curriculum must reflect the six domains of the ACGME milestones competencies [11]—patient care, medical knowledge, practice-based learning and improvement, interpersonal skills and communication, professionalism, and system-based practice (sample, Appendix 3). These educational goals and objectives should be reviewed with residents and preceptors on at least a semiannual basis. Residency program directors must verify residents' clinical competence and performance trajectory in the six milestones core competencies within ambulatory education. The websites of both AAIM (<http://www.im.org/p/cm/ld/fid=464>) and ACGME (<http://www.acgme.org/What-We-Do/Accreditation/Milestones/Overview>) publish milestones guidebooks and developmental toolkits in competency-based medical education for any program to adapt accordingly.

**Table 1** Types of learning objectives. Adapted from: Johns Hopkins School of Medicine (2016) [12]

Types of objectives	Definition	Sample learning objective for the professionalism competency
Learner-focused	Cognitive (knowledge-based) Affective (attitude based) Psychomotor (skills-based, behavioral-based)	By end of rotation, residents will be able to list five different personal, psychological, and/or physical limitations that may affect professional performance By end of rotation, residents will have rated more highly their empathy and compassion toward their primary care patients with chronic pain issues By end of rotation, residents will be able to demonstrate competency in providing support (physical, psychological, social, and spiritual) for dying patients and their families
Process-focused	Curriculum implementation measures	By end of rotation, residents will review three mini-CEX sessions with faculty preceptor for feedback on professional interaction with patients
Outcomes-focused	Patient-related outcomes Healthcare outcomes Career choices	Three months after rotation, a higher percentage of residents' primary care patients will report increase satisfaction in their interaction with their resident physician

## ***Educational Strategies: Structured Core Curricular Content and Delivery Strategies***

A core curricular thread comprised of supplemental teaching modalities is a fundamental component of any ambulatory medicine curriculum. This helps to consolidate ambulatory concepts with learning in the clinical setting, promote self-directed learning beyond patient cases seen, and solidify clinical practice with evidence-based medicine [13–18]. A robust ambulatory curriculum should incorporate a balance of experiential training from direct patient care (e.g., acute care, chronic disease management, office-based procedures), formal educational instruction (e.g., teaching conferences, case-based small group sessions, web-based modules), and resident-driven learning strategies (e.g., problem-based learning, team-based learning, QI mini-projects, resident-led workshops, flipped classroom model).

Clear, achievable learning objectives should be established for each teaching pedagogy and its curricular contents updated at least annually. Emphasis must be placed on critical reasoning and active adult learning in small group settings; ambulatory curriculum has shifted away from traditional lecture-based teaching to problem-based learning [19–21]. Core curricular contents can be delivered in a variety of effective pedagogical venues including, but not limited to, ambulatory conference series, ambulatory medicine morning report, ambulatory medicine journal clubs, online learning modules, and patient simulation exercises.

## ***Implementation with Bidirectional Evaluation and Feedback***

Implementation of any ambulatory curriculum must first address barriers and identify resources and appropriate support. A rigorous evaluation system must then be established to routinely gauge its educational programming and primary stakeholders (i.e., residents, clinic staff, and faculty preceptors). Curricular metrics reflect outcomes-focused learning objectives and assess the level of milestones-specific competencies acquired by residents in the longitudinal care of their primary care patients [8]. Internal evaluation of the ambulatory curriculum should be done at least semiannually to ensure timely improvements to the overall program.

Bidirectional evaluations of both residents and faculty preceptors are an integral component of any ambulatory curriculum. Resident ambulatory evaluation data can originate from a variety of sources including, but not limited to, direct observation of patient encounters, mini-Clinical Evaluation Exercise (mini-CEX), Objective Structured Clinical Examination (OSCE), chart-simulated recall, and multisource feedback. These formative evaluations of residents are continuous throughout the academic year. The faculty clinic preceptor should complete a semiannual evaluation every 6 months on residents' performance in ambulatory milestones competencies to align with the Clinical Competency Committee (CCC) report to ACGME. To ensure reciprocity, faculty evaluation data should ideally be collected primarily

from residents' and peers' confidential feedback of teaching performance. ACGME Common Program Requirements stipulate at minimum a yearly evaluation of faculty performance and include "a review of the faculty's clinical teaching abilities, commitment to the educational program, clinical knowledge, professionalism, and scholarly activities" [1] (see chapter "Clinic Evaluations and Milestones").

### ***Ambulatory Faculty Development Needs***

Any ambulatory curriculum capitalizes on the clinical and teaching skills of the ambulatory faculty but will require a well-structured plan for ambulatory faculty development to ensure successful curriculum implementation. Faculty development programs are important to train clinic faculty on a variety of ambulatory teaching skills and instructional pedagogies. Ambulatory faculty must be able to skillfully diagnose patients' complaints while assessing and teaching to their learner's needs. To do so, faculty preceptors should be trained in effective ambulatory teaching models such as the One-Minute Preceptor and SNAPPS (Summarize, Narrow, Analyze, Probe, Plan, and Select) [22–25]. These validated models help to extract the highest-yield ambulatory concepts for learners in the busy ambulatory setting. See chapter "Medical Students in Clinic" for further details. The Education Committee of the American College of Physicians has even advocated for a "core faculty" group comprised of seasoned clinician educators who are "provided sufficient time, financial remuneration, academic status, and institutional recognition for teaching, evaluating, supervising and mentoring trainees" [26] (See for more details chapter "Supervising and Supporting Faculty" and chapter "Faculty Recruitment and Retention").

## **Ambulatory Curriculum Delivery**

### ***Core Curricular Content***

Clinical experience alone is limited in its ability to cover the breadth of knowledge in the outpatient setting given time constraints and differing patient experiences. Ambulatory didactics are needed to solidify ambulatory concepts beyond specific patient encounters and incorporate evidence-based medicine for high-quality care and lifelong learning [13, 14].

The standard curriculum must cover core ambulatory contents that will empower residents to practice outpatient medicine in any setting, whether in primary care or subspecialty medicine [27]. Ambulatory content can be further individualized to the clinical experiences of the specific academic institutions. Preventive medicine is a key component of primary care, and residents should be taught guideline-based and

evidence-based preventative care measures. Curricula should further include such topics as billing and coding, panel management, team-based care, patient-physician communication, chronic disease management, electronic health record management, quality improvement/patient safety, and high-value care [28–30]. Depending on institutional needs and interests, programs may consider specialized topics addressing chronic pain and addiction medicine, social determinants of health, immigrant or refugee health, geriatrics, transgender health, or LGBT care. Maintaining a 12-month to 36-month core curricular thread of ambulatory topics will ensure a rigorous and balanced educational exposure (Appendix 6).

## ***Teaching Methods and Instructional Strategies: Formal Instruction***

### **Small Group Sessions**

Small group sessions in the ambulatory setting can be a valuable tool to enhance outpatient learning. The small group allows for learner engagement, interactive didactics, and a forum to cover many broad clinical topics not commonly present in the clinic. Small groups can be utilized within the construct of a larger curriculum, e.g., Yale Office-Based Medicine Curriculum [31], or can be learner-directed [32] in the clinic. Small groups can focus on specific skills teaching [33] or work to improve subjective skills such as patient interviewing [34]. These small group sessions are particularly useful if there is a specific gap in education recognized by the program.

### **Ambulatory Morning Report**

Morning report is a classic educational model that can be adapted to the ambulatory setting. Traditionally, morning report consists of case-based education where learners and teachers interact in a dynamic process to discuss patient care [35, 36]. However, there is no formal definition, and no effective format is noted in the literature [35]. In the ambulatory setting, morning report is an excellent venue to introduce common outpatient medical problems and share experiences among a larger group of residents [37]. A few studies noted that the topics presented in ambulatory morning reports are more general and more practical than inpatient topics [37, 38].

For those residency programs with an established inpatient morning report, adapting this educational modality to the clinic is simple. The key aspect is faculty and resident buy-in to ensure that the sessions are interactive and supported by faculty presence. Interactive discussions during morning report would then take place with chief resident or attending input. Despite being called “morning” report, there is no specific best time and/or frequency for morning report, as long as attendance can be assured [35]. Ambulatory morning report has been used to teach evidence-based medicine [39], morbidity and mortality [40], and more [35].

## Evidence-Based Learning

Evidence-based medicine (EBM) uses current best scientific evidence to guide patient care decisions for management. Evidence-based learning consists of a four-step process [41]:

1. Formulate a clear clinical question from a patient problem.
2. Search the literature for relevant clinical articles.
3. Critically appraise the evidence for its validity and usefulness.
4. Implement useful findings in clinical practice.

With the advent of the six milestones competency domains, the ACGME requires programs to train residents not only in clinical skills and medical knowledge but also in quality, patient safety, EBM, and cost-effective care [42]. Residency programs must address residents' barriers to practicing EBM including limited time; lack of experience in EBM; influences from other team members, e.g., faculty role models; and self-perceived inferior positional status and low likelihood to influence change at their institution [43]. To surmount these barriers, ambulatory curricula require EBM teaching to promote residents' practice-based learning skills and lifelong learning.

### Ambulatory Journal Club

Journal clubs are a popular modality to teach physicians how to critically appraise the medical literature and stay current with new evidence. Journal club discussions that are small group, structured, and facilitated by faculty can lead to an increase in resident knowledge of critical appraisal and clinical epidemiology [44–46]. Systematic reviews found that overall, journal clubs can enhance residents' knowledge of epidemiology, biostatistics, reading habits, and references to the medical literature [47]. Further studies are still needed to determine if journal clubs improve clinical behavior. Nonetheless, ambulatory journal club is a vital instructional modality in any ambulatory curriculum to promote academic rigor and EBM practice among residents and faculty [28].

### PICO Reports

Critical to practicing EBM is asking the right clinical question. Questions should be as specific as possible, including distinct patient characteristics, the clinical intervention being considered, and the desired outcome [41]. The PICO format helps to design such clinical questions to include the patient or problem, the intervention, the comparison group (usually the standard of care or main alternative), and the outcome [48]. The PICO report provides a template for clinicians to build a specific clinical question and a search strategy to determine the main concepts of the article and answer the question posed. It prompts residents to research a specific clinical question during an actual patient care encounter. This format can be extrapolated to house staff presentations as a way to complement ambulatory journal clubs.

Residents can present the relevant article(s) and apply them appropriately in the clinical decision-making process.

## Structured Clinical Observations

### Mini-Clinical Evaluation Exercises (Mini-CEX)

The mini-CEX, as defined by the ABIM, consists of 10–20 min of direct assessment by a clinical faculty member. This allows for a quick view into a resident's competence in certain area of practice. The mini-CEX is not intended to be a comprehensive assessment of a full patient encounter but rather serves as a focused assessment of a resident's competence in a key encounter element (e.g., history gathering, physical examination skills, counseling). The ABIM website encourages the faculty to perform at least one mini-CEX per clinical rotation. After such an interaction, the faculty should then provide timely and specific feedback [51]. The literature reports the far-reach of this method of teaching and objective observation into the international platform and on a variety of contexts in clinical teaching settings.

The mini-CEX format has demonstrated reproducible and reliable results [52]. One main benefit is its ability to provide immediate feedback to the learner. Educators have reported this as valuable, given the lack of time to complete administrative and clinical tasks as well as teach and provide feedback [49, 50]. Mini-CEXs also provide an aspect of realism to the encounter that can be lost in other educational models such as an OSCE [50]. Since residents interact with patients on a daily basis, it is relatively simple to carve time-out within the academic year for this type of instructional modality.

Some pitfalls of the mini-CEX tool include the need for faculty development and rater training [49, 50]. Depending on the type of model implemented and the level of faculty expertise, a significant amount of faculty training maybe required to limit the variation and increase the value of the feedback/rating gathered. This pitfall can be reduced by choosing high-yield areas of evaluation (i.e., breaking bad news, communication skills) since they are already linked to other curricular goals [49]. Time is another concern of the mini-CEX tool. Several studies note that faculty time commitment can range between 19 and 31 min including feedback time [53, 54].

The ABIM website provides a generic template for the development and implementation of a mini-CEX tool into a residency program (Table 2) [51]. The form can be modified to the needs of a residency program, and a modified version of the form is located in the AAIM curriculum toolkit. One can denote on this form the level of satisfaction with the mini-CEX experience, which is useful for faculty development. Programs can also develop their own forms based on the clinical skills involved. Further research should focus on linking specific evaluations to the ACGME milestones.

**Table 2** Steps in the development and implementation of a mini-CEX for a residency program

1st: Convene a group of faculty educators vested in mini-CEX development and participation
2nd: Identify a list of competencies and skills that are conducive to mini-CEX assessment and important to be evaluated in the residency program
3rd: Decide on the minimum competency requirements needed to be achieved for each resident contingent to his/her training level
4th: Determine the role of the mini-CEX, i.e., educational only vs. formative feedback vs. both
5th: Determine the number of mini-CEX assessments needed for each PGY level
6th: Develop a mini-CEX assessment form appropriate to your program See ABIM website for a sample direct observation mini-CEX template
7th: Disseminate the mini-CEX form to clinical sites which are easily accessible and well known to all faculty and learners
8th: Be sure to assess residents routinely and regularly throughout the academic year
9th: Be sure to document every mini-CEX assessment encounter
10th: Provide immediate, specific feedback to the resident during the mini-CEX encounter
11th: Designate one faculty at each clinical site to take responsibility for disseminating and collecting mini-CEX forms
12th: Analyze all mini-CEX results in a timely manner based on curricular goals

**Adapted from:** Liao K, Pu S, Liu M, Yang C, Kuo H. Development and implementation of a mini-Clinical Evaluation Exercise (mini-CEX) program to assess the clinical competencies of internal medicine residents: from faculty development to curriculum evaluation. *BMC Med Educ* 2013;13(31)

## Patient Simulation Exercises

Most residency programs use patient simulation exercises to teach emergent clinical scenarios such as “rapid response” and/or cardiopulmonary arrest (“Code Blue”) situations as well as to teach specific procedural skills such as central line placement. In the ambulatory setting, some programs use procedural simulation modalities to teach outpatient skills such as arthrocentesis and abdominal paracentesis. Simulations ensure that residents receive high-yield experiences such as mock exercises related to patient safety and improve on their practical skills which may be difficult to do during an 80-h workweek. Simulation can be adapted to a variety of clinical situations, whether it be management of a specific medical issue (e.g., back pain in the clinic) or crisis management (e.g., patient becomes acutely ill or medically unstable in the clinic) [55]. One advantage of the simulation modality is its removal of risk associated with learning a procedure on an actual patient [55]. It allows deliberate practice to occur with immediate feedback available [56]. However, further research in utilizing this type of educational model in ambulatory internal medicine is needed.

## ***Teaching Methods and Instructional Strategies: Resident-Directed Learning***

### **Team-Based Learning**

Initially developed by Larry Michaelsen [57, 58], team-based learning (TBL) is an adult learning pedagogy that uses small group instruction, problem solving, and a knowledge application process for residents to be active participants in their learning. There is a specific sequence of events, starting with an individual pre-class preparation and then individual and group testing based on the pre-class reading called the Readiness Assurance Process, followed by a team-based application exercise and feedback. TBL has been successful in undergraduate medical education [59] with increasing use in graduate medical education, especially in the ambulatory setting. At Northwell Health, the faculty converted all their ambulatory didactics to a modified TBL pedagogy. They found the use of TBL resulted in increased resident engagement, improved facilitated group learning, and preference by residents and faculty for TBL pedagogy over traditional didactic lectures [60]. A recent meta-analysis of seven unique TBL curricula in a variety of GME programs noted higher levels of learner engagement and positive or neutral responses by learners of the TBL pedagogy. However, many faculty reported increased time investment for developing TBL curricula. Despite visible knowledge gains, it is unclear how TBL compares to traditional instructional models in terms of content retention and faculty time investment [61].

### **Problem-Based Learning**

Problem-based learning (PBL) has been used in interdisciplinary medical education for the last 40 years [62]. It is an active, learner-centered educational strategy focused around a specific problem, whether it is a clinical-, a scientific-, or a community-based problem. Residents use the problem as a starting point to guide their individual learning needs [62]. Unlike TBL, learners are presented with a problem with no pre-work or preparation. They work either individually or in small groups through the scenario and identify unfamiliar terms or concepts. The group determines underlying mechanisms and formulates potential explanations for the problem scenario. The group identifies learning issues associated with the clinical encounter and related to the learning objectives identified by faculty. Following this stage is a period for individual study for accessing a range of educational resources. The group then reconvenes to share what they have learned and apply the learning to the problem scenario. This stage may uncover new learning points that require further individualized study. The final stage is to generalize the learning to the knowledge, skills, or attitudes of other relevant scenarios [62]. PBL has been studied extensively in the undergraduate medical literature, and unfortunately, review of

the literature suggests no substantial evidence that PBL improves clinical performance or increases medical knowledge base; however, students and faculty find greater satisfaction in learning and teaching in this format [63].

### **Flipped Classroom**

Similar to TBL and PBL, a flipped classroom is a learner-centered instructional strategy that reverses the traditional educational arrangement by delivering instructional content outside the classroom. This information can be in the form of audio, video, text, or images. It requires the learner to be an active participant in acquiring knowledge and in using it for evaluation of self-performance and peer feedback. It redefines in-class activities to include an application activity, traditionally considered “homework,” to engage learners in the educational content. Residents are able to utilize this knowledge in interactive formats, such as traditional PBL or TBL, or involve simulation activities, role-play, patient encounters, or debates [64]. Teachers take on the role of facilitator by organizing interactive experiences, challenging students to think creatively, and providing expert insight and feedback. This interaction is less didactic and more personalized to the learners [65]. This pedagogy has also been adapted in residency programs of other medical subspecialties [66] and health professional schools with success [65]. The flipped classroom modality leverages technology to meet the needs of learners and allows learners access to the much-needed material for knowledge mastery.

### **Web-Based Learning**

Educational tools that utilize web-based learning (e-learning) are useful to augment any ambulatory curriculum, especially in the age of millennial learners. E-learning modules help with work hour constraints and present general information regardless of the expertise of the assigned attendings. Web-based module formats are effective at teaching a variety of topics to learners, with improved knowledge [67, 68] and communication skills [69]. Many educational models use e-learning as an adjunct to established ambulatory curricula. The major advantages of web-based learning include the portability of knowledge through a universal web access point and its adaptability to many levels of learners. This instructional modality does not add to the attending workload and can be sustained with limited maintenance [70]. The literature has cited residents’ preference for web-based learning as well. One study showed greater resident satisfaction with web-based learning compared to print materials [71]. Multiple models of e-learning exist in the literature including education in end-of-life and palliative care [70], nephrology at the point of care [72], education about DKA [73], dermatology [74], and cultural competency [75]. Many modules also focus on specific topics available to health systems and universities.

These include the Institute for Healthcare Improvement's Open School [76], Centers to Advance Palliative Care Modules [77], and American Academy of Dermatology Basic Dermatology Curriculum [78]. With available technical support, residency programs can create their own e-learning tools that directly complement established education in the clinic.

### **Quality Improvement Instruction and Application**

Quality improvement (QI) and patient safety (PS) education have become important in ambulatory education as programs develop curricula for their residents to meet specific ACGME milestones in QI skills. Training residents in QI not only helps to meet milestones but also gives residents experiential learning in QI/PS issues encountered in independent practice. It is important to integrate QI projects into the resident continuity clinic experience, not only to develop basic skills in quality improvement and panel management, but resident-driven QI projects can help residents become more invested in their continuity clinics [79, 80]. For more information on developing a QI curriculum, please refer to chapter "Quality Improvement Projects and Indicators" on quality improvement.

### **Ambulatory Curriculum Design and Venue**

Ambulatory medicine education is often delivered to residents by two major curricular designs—longitudinal continuity clinics [81–83] and ambulatory block rotations which include the  $x + y$  burst model [13, 17, 84–87]. Most recently, ambulatory long blocks have emerged as an innovative third design to sustain the continuity of the ambulatory clinical experience [88–90]. Clinical experiential training remains the crux of these curricular designs. Embedded within these curricular designs are various instructional venues to allow for dedicated time blocks for formal ambulatory teaching with no patient care assignments. These include academic half-days, pre-clinic or post-clinic conferences, and daily protected didactics, i.e., ambulatory morning reports and noon conferences. These supplementary educational venues consolidate the experiential learning, extend the curriculum beyond clinical cases, and connect clinical practice with evidence-based medicine [13, 14]. Consult chapter "Traditional and Block Scheduling Challenges and Solutions for Internal Medicine Residents" for more information on the various residency schedules.

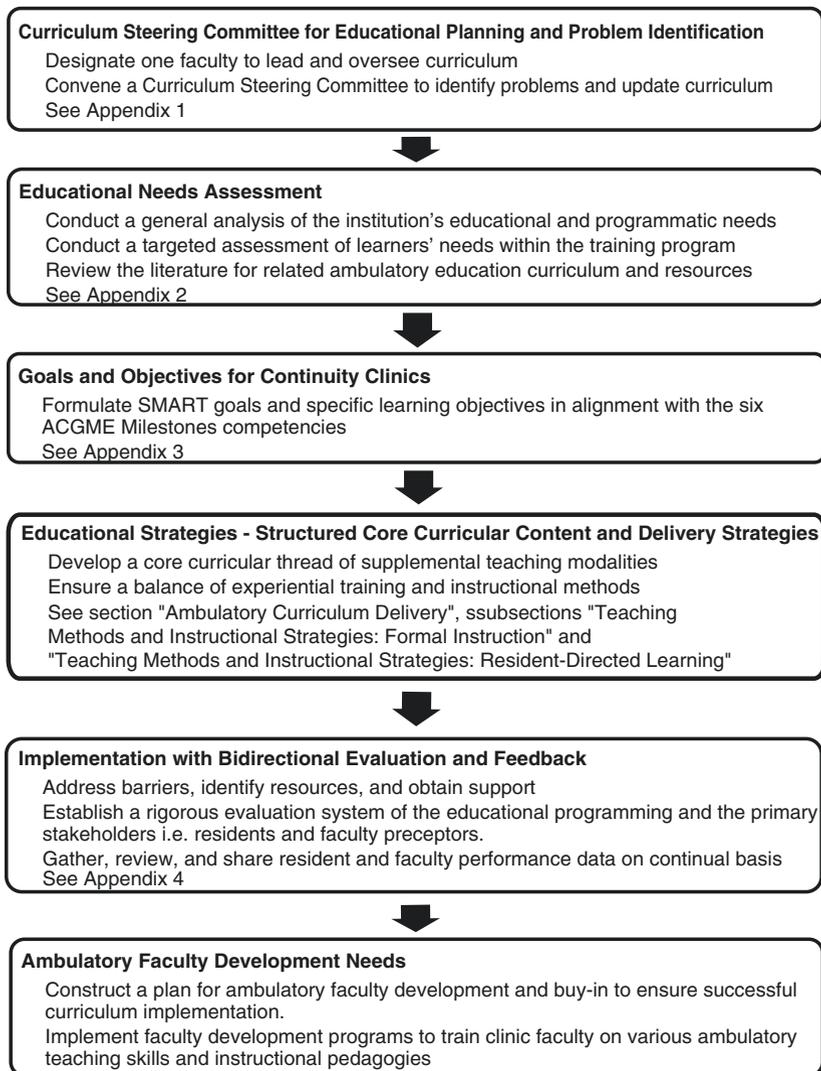
## **Developing an Ambulatory Curriculum in One's Own Academic Clinic**

### ***Step-by-Step Guide of Essential Elements in Developing an Ambulatory Curriculum***

For a successful ambulatory curriculum, the authors recommend that clinic directors assemble a team dedicated to identifying the ambulatory educational needs for the program and the residents, develop goals and objectives for continuity clinics, create and implement a core curriculum, and, finally, establish a forum for feedback, assessment, and faculty development (Fig. 1).

### ***Existing Ambulatory Curricula***

Existing ambulatory curricula can be purchased to facilitate the development process of an ambulatory curriculum. The two most popular curricula are the Internal Medicine Ambulatory Care Curriculum offered through Johns Hopkins and the Yale Office-Based Medicine Curriculum. The Internal Medicine Ambulatory Care Curriculum through the Physician Education and Assessment Center (PEAC) at Johns Hopkins consists of 43 modules relevant to outpatient medicine. Topics are in a case-based format with a pretest and posttest to assess resident knowledge. Each module has links to relevant journal articles, abstracts, images, and videos [91]. This curriculum can help complement the core residency ambulatory content and fulfill any clinical knowledge gaps at any institution. Over 180 residency programs have subscribed to this curriculum. Alternatively, the Yale Office-Based Medicine Curriculum exists to help house staff assess and manage common ambulatory problems through an evidence-based syllabus. It covers 3 years of ambulatory training with over 144 clinical cases with case-related questions. There are two formal guides: a house staff guide composed of the case, clinical questions, and key references and a faculty guide composed of teaching points with answers. The Yale Office-Based Medicine Curriculum is used by over 190 internal medicine and family medicine residency programs [31]. Both of these curricula have an annual subscription fee for institutions to purchase for use in their residency program.



**Fig. 1** Step-by-step guide in developing an ambulatory curriculum. *Adapted from: Kern DE, Thomas PA, Hughes MT: Curriculum Development for Medical Education – A Six-Step Approach, 2nd edition. Baltimore: The Johns Hopkins Univ. Press. 2009*

## Conclusion

Since ambulatory education makes up one-third of residency training, the experiential component of outpatient training must be supplemented by a structured core curricular thread. This curricular thread is guided by the needs of both the learners

and institutions, has achievable learning objectives specific to ACGME competencies, and covers basic outpatient skills such as electronic health record management, chronic disease management, and team-based care. Most trainees after residency or fellowship will practice in the outpatient setting and require these core skills for success. Assorted instructional strategies from formal instruction to resident-directed learning modalities can help address the diverse learning styles of learners and unique teaching techniques used by faculty.

### Appendix 1: A General Needs Assessment of Ambulatory Medicine Curriculum

Problem identification—What is the current approach? Barriers to implementation?	Ideal approach?	Goals and objectives	Resources needed for implementation?

### Appendix 2: Targeted Needs Assessment of Learners

Key learners	Impact of curriculum	Relevant info needed from learners	Methods for learner needs assessment	Resources needed for implementation

### Appendix 3: Example Goals and Objectives

**Internal Medicine Residency Training Program**  
**Resident Continuity Clinics**  
**Resident Clinic Director:** \_\_\_\_\_

*Rotation description:* The continuity clinic rotation teaches residents to care for a longitudinal panel of primary care patients over their 3-year residency. In their primary care continuity clinics, residents will manage patients with a mix of acute care issues and chronic medical conditions, including but not limited to diabetes, hypertension, coronary artery disease, and COPD. Residents will also perform office-based procedures under the supervision of a clinic attending.

**Principal Educational Goals by Relevant Competency**

The principal educational goals for residents on this rotation are indicated for each of the six ACGME competencies in the tables below. The first column of the table lists the goals; the second column maps the goals to the reporting milestones competencies; the third column lists the most relevant learning activities for that goal; and the fourth column indicates the correlating evaluation methods for that goal.

**PGY-1/2/3 (Goals Are for All Levels Unless Indicated)**

Principal educational goals	Milestones competency	Learning activities	Evaluation methods
<i>A. Patient care</i>			
Ability to take a complete medical history and perform a careful and accurate physical examination	PC1	DPC	FE, MC, CEX, SPE
Ability to write or dictate concise, accurate, and informative histories, physical examinations, and progress notes	PC1, ICS2, ICS3	DPC	FE
Define and prioritize patients’ medical problems and generate appropriate differential diagnoses	PC1, PC2, PC3, MK1	DPC, FR	FE
Develop rational, evidence-based management strategies	PC2, PC3, MK1, SPB2, SPB3, PROF3, PBL4	DPC, FR, MR, EBM	FE
PGY-1—Ability to make basic interpretation of chest and abdominal x-rays and electrocardiograms PGY-2/3—Develop and demonstrate proficiency in above	MK2	DPC, FR, MR DPC, FR, MR	FE, IE FE, IE
PGY-1—Ability to perform pelvic examination under supervision PGY-2/3—Ability to perform pelvic examination	PC4, MK2 PC4, MK2	DPC, ACS, AM DPC, ACS, AM	FE FE
Ability to recognize the physical findings of important medical illnesses	PC1, PC2, PC3	DPC, MR, MM	FE, MC, CEX
Willingness and ability to help patients engage in strategies of disease prevention	PC2, MK1, MK2, SBP3, PROF1, PROF3, ICS1	DPC	FE, SPE, MC
<i>B. Medical knowledge</i>			
Expand clinically applicable knowledge base of the basic and clinical sciences underlying the care of medical patients in the outpatient setting	PC1, PC2, MK1	AM, DPC, PIP, JC, NC, MR	FE, IE, PIP
Access and critically evaluate current medical information and scientific evidence relevant to patient care in outpatient setting	SPB2, PBL14	DPC, JC, NC, EBM, MR	FE, IE

PGY-1—Understand basic pathophysiology, clinical manifestations, diagnosis, and management of medical illnesses seen by a general internist in the ambulatory setting PGY-2/3—Develop and demonstrate in-depth knowledge of above	PC1, PC2, MK1 PC1, PC2, PC3, MK1	DPC, NC DPC, NC	FE, IE FE, IE
PGY-1—Recognize the indications for and basic interpretation of chest and abdominal x-rays, electrocardiograms, and pulmonary function tests PGY-2/3—Develop and demonstrate in-depth knowledge of above	PC1, MK2, SBP3 PC1, MK2, SBP3	DPC, MR, ACS DPC, ACS, MR	FE, IE FE, IE
PGY-1—Learn indications for and basic interpretation of standard laboratory tests, including blood counts, coagulation studies, blood chemistry tests, urinalysis, body fluid analyses, and microbiologic tests PGY-2/3—Develop and demonstrate in-depth knowledge of above	PC1, MK2, SBP3 PC1, MK2, SBP3	DPC, MR DPC, MR	FE, IE FE, IE
PGY-1—Familiarity with basic principles of disease prevention, including adult immunizations, cardiovascular risk assessment, prevention of cardiovascular disease, screening for cancer, prevention of osteoporosis, and cessation of tobacco PGY-2/3—Develop and demonstrate in-depth knowledge of above	PC2, MK1, MK2, SBP3, PROF3, ICS1 PC2, MK1, MK2, SBP3, ICS1	DPC, ACS, PIP, AM DPC, ACS, PIP	FE, PIP FE, PIP
Appreciation of the evolution of chronic conditions over time	PC1, PC2, PC3,	DPC, NC, AM, ACS	FE
PGY-1 —Basic familiarity with pathophysiology, clinical manifestations, and nonoperative management of common musculoskeletal conditions, including occupational and sports-related injuries PGY-2/3—Develop and demonstrate in-depth knowledge of above	PC1, PC2, PC3, MK1 PC1, PC2, PC3, MK1	DPC, ACS, CC, NC, AM DPC, ACS, NC, AM	FE, IE FE, IE
PGY-1—Basic familiarity with pathophysiology, clinical manifestations, and medical management of common gynecological conditions, including acute salpingitis, vaginitis, dysmenorrhea, irregular menses, and menopausal symptoms PGY-2/3-Develop and demonstrate in-depth knowledge of above	PC1, PC2, PC3, MK1 PC1, PC2, PC3, MK1	DPC, ACS, AM, NC DPC, ACS, AM, NC	FE, IE FE, IE
PGY-1 —Basic familiarity with pathophysiology, clinical manifestations, and medical management of common otolaryngological conditions, including acute and chronic sinusitis and allergic rhinitis PGY-2/3—Develop and demonstrate in-depth knowledge of above	PC1, PC2, PC3, MK1 PC1, PC2, PC3, MK1	DPC, ACS, NC, AM DPC, ACS, AM,	FE, IE FE, IE

PGY-1—Basic familiarity with pathophysiology, clinical manifestations, and management of common ophthalmologic conditions, including minor ocular injuries and conjunctivitis PGY-2/3—Develop and demonstrate in-depth knowledge of above	PC1, PC2, PC3, MK1 PC1, PC2, PC3, MK1	DPC, ACS, NC, AM DPC, ACS, NC, AM	FE, IE FE, IE
Familiarity with special features of diagnosis, interpretation of tests, and management of illnesses in a geriatric population	PC1, PC2, PC3, MK1, MK2, PROF3	DPC, SL, AM, NC	FE, IE

*C. Interpersonal skills and communication*

Communicate effectively with patients and families	PROF1, PROF3, ICS1	DPC	FE, SPE, PE
Communicate effectively with physician colleagues at all levels	PC5, SBP1, SBP4, PBLI3, ICS2	DPC, PC	FE, PR
Present information on patients concisely and clearly, both verbally and in writing	PROF1, PROF3, ICS1, ICS3	DPC, MR	FE, PR, NE, MRF, ABF

*D. Professionalism*

Interact professionally toward patients, families, colleagues, and all members of the healthcare team	SBP1, PBLI3, PROF1, ICS1, ICS2	DPC	FE, PR, NE, PE, SPE
Acceptance of professional responsibility as the primary care physician for patients under his/her care	PC3, PBLI1, PROF2, PROF4	DPC	FE
Appreciation of the social context of illness	PC2, MK1, PROF3, ICS1	DPC	FE, SPE
Understand ethical concepts of confidentiality, consent, autonomy, and justice in the outpatient setting	PROF1, PROF4	DPC, EC	FE, PE
Understand professionalism concepts of integrity, altruism, and conflict of interest in the outpatient setting	PROF1, PROF4	DPC, EC	FE

*E. Practice-based learning and improvement*

Identify and acknowledge gaps in personal knowledge and skills in the care of ambulatory patients	PC2, PC3, PBLI1, PBLI3	DPC, PIP	FE, PIP
Develop and implement strategies for filling gaps in knowledge and skills	SPB2, PBLI1, PBLI2, PBLI4	DPC	FE, IE, HEC
Commitment to professional scholarship, including systematic and critical perusal of relevant print and electronic literature, with emphasis on integration of basic science with clinical medicine, and evaluation of information in light of the principles of evidence-based medicine related to the outpatient world	PBLI2, PBLI4, PROF4	DPC, EBM, JC	FE, JCF, ABF

<i>F. System-based practice</i>			
Understand and utilize the multidisciplinary resources necessary to care optimally for clinic patients	PC3, PC5, SBP1, SBP4	DPC	FE
Collaborate with other members of the healthcare team to assure comprehensive patient care	SBP1, SBP4, PBLI3, PROF1	DPC	FE
Use evidence-based, cost-conscious strategies in the care of outpatients	MK2, SBP3	DPC, SS	FE
Effective collaboration with other members of the healthcare team, including nurses, clinical pharmacists, occupational therapists, physical therapists, nutrition specialists, patient educators, speech pathologists, respiratory therapists, enterostomy nurses, social workers, and providers of home health services	SBP1, SBP4, PROF1	DPC	FE
Knowing when and how to request medical consultation and how to utilize the advice provided	PC5, SBP1, PROF1	DPC	FE
Consideration of the cost-effectiveness of outpatient diagnostic and treatment strategies	MK2, SBP3	DPC	FE
Knowing when to refer patients to specialists in orthopedics, gynecology, otolaryngology, and ophthalmology	PC5	DPC, ACS, AM	FE
Knowing when to consult or refer a patient to a medical subspecialist	PC5	DPC, ACS	FE
PGY-2/3—Willingness and ability to teach medical students and PGY-1 residents	PROF2, ICS2	DPC, RAE	FE, PR

**Legend for milestones competencies (per ACGME reporting milestones):** *PC* Patient care, *MK* Medical knowledge, *SBP* System-based practice learning, *PBLI* Practice-based learning improvement, *PROF* Professionalism, *ICS* Interpersonal and communication skills

**Legend for learning activities:** *ABS* Ambulatory block series, *FR* Work and teaching rounds, *MM* Morbidity and mortality, *AM* Ambulatory month, *GR* Grand rounds, *MR* Morning report, *DPC* Direct patient care, *EBM* EBM week, *NC* Noon conference, *EC* Ethics conference, *JC* Journal club, *PIP* Performance improvement project

**Legend for evaluation methods for residents:** *AM* Ambulatory month, *PR* Peer review, *ABW* Ambulatory block workshop feedback, *SPE* Standardized patient evaluation, *FE* Faculty evaluations, *PE* Patient evaluation, *IE* In-service exam, *MCEX* Mini-CEX, *CCC* Clinical Competency Committee semiannual review, *PCRM* Patient care resource manager evaluation, *OSCE* Objective structured clinical examinations, *MRF* Morning report feedback, *NE* Nursing evaluations, *JCF* Journal club feedback

## Appendix 4: Checklist for Curriculum Implementation

- Identify resources
  - Personnel required: faculty, staff, others
  - Time: faculty, learners, support staff

- Facilities: space, equipment, sites
- Funding/costs: direct and indirect costs
- Obtain support
  - Internal: program director, department chair, learners, faculty
  - External: professional societies, if applicable (e.g., SGIM, AAIM)
- Develop administrative mechanisms to support the curriculum
  - Administrative structure of team
    - Necessary for delineating responsibilities and decision-making
  - Communication
    - Content to learners and faculty: includes goals and objectives, information about curriculum, facilities, scheduling, changes, evaluation results
    - Mechanisms: email, meetings, website, etc.
  - Operations
    - Preparation and distribution of schedules and curricular materials
    - Method of collecting, collating, and distributing evaluation data
    - Process for revisions
- Anticipate and address barriers
  - Financial
  - Competing demands
  - People: attitudes of learners and faculty, faculty without enough time, authority, etc.
- Introduce curriculum in stepwise fashion
  - Pilot project
  - Phase-in
  - Full implementation

**Adapted from:** Kern DE, et al.: *Curriculum Development for Medical Education – A Six-Step Approach*, 2nd edition. Baltimore: The Johns Hopkins Univ. Press. 2009

## Appendix 5: Sample Mini-CEX for Gynecological Examination

Resident: \_\_\_\_\_

Date: \_\_\_\_\_

Supervisor: \_\_\_\_\_

Please rate the resident on the following criteria:

	Poor/not done	Minimal/adequate	Excellent
1. Proper patient positioning	1	2	3
2. Communication with patient during exam	1	2	3
3. Inspection of the external genitalia	1	2	3
4. Use of speculum (insertion and removal)	1	2	3
5. Inspection of vaginal walls and cervix	1	2	3
6. Obtained sample for Pap smear and/or wet mount/culture	1	2	3
7. Bimanual examination	1	2	3
8. Examination for inguinal adenopathy	1	2	3
9. Overall rating	1	2	3

Do you feel this resident is competent in performance of the pelvic exam? Yes No  
Please provide any additional comments below:

## Appendix 6: Sample 18-Month Curriculum for x + y Clinic Design, Repeated Twice over Residency

Block	Theme
1	Introduction to office-based practice I
2	Screening, prevention, population health
3	Pain management/musculoskeletal
4	Cardiology
5	Psychiatric disease
6	Pulmonary
7	Infectious disease/HIV
8	Endocrine
9	Gastroenterology
10	Renal
11	Geriatrics
12	Women's health
13	Neurology/dermatology
14	ENT/ophthalmology/hematology
15	Palliative
16	High-value cost-conscious care
17	Urban curriculum
18	Career development and wellness

### Sample 36-month curriculum for traditional, weekly half-day clinic design

Month	Topics		
	Year 1	Year 2	Year 3
July	Billing and coding	Billing and coding	Billing and coding
August	Preventative services: vaccine/cancer screen	Preventative services: vaccine/cancer screen	Preventative services: vaccine/cancer screen
September	Type 2 diabetes mellitus	Preoperative evaluation	Sexually transmitted diseases
October	Hypertension	Coronary artery disease	Geriatric wellness
November	Hyperlipidemia	Obesity	Congestive heart failure
December	Panel management	Panel management	Panel management
January	Depression/anxiety	Hypogonadism and erectile dysfunction	Chronic pelvic pain and dysmenorrhea
February	Chronic pain syndrome	Gout vs. osteoarthritis	Women's health
March	URI vs. sinusitis	Fibromyalgia	Hepatitis C
April	Asthma and COPD	CVA/TIA	Atrial fibrillation
May	Thyroid disease: hypo-/hyperthyroidism	GERD	Community-acquired pneumonia vs. influenza
June	Transitions of care	Migraines vs. tension headaches	Osteoporosis and vitamin D deficiency

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# Chapter 16

## Electronic Medical Systems



Gail Berkenblit, Elizabeth Koehler, and Jeremy Epstein

### Introduction

Electronic medical records (EMRs) offer the potential to improve quality of care, provide reminders and tracking for preventive health, and facilitate health information exchange. However, EMRs require extensive training, may negatively impact the patient-physician interaction, and create new safety concerns.

In 2016, it was reported that 96% of hospitals and 74% of office-based providers have EMRs [1, 2]. This is a dramatic change since 2009 when only 12% of hospitals and 48% of office-based physicians reported even basic EMR use. This rapid adoption has challenged physician practice as well as residency training to keep pace.

The impetus for this change was the HITECH Act which requires EMR adoption and “meaningful use.” The Office of the National Coordinator for Health Information Technology (ONC) and the Centers for Medicare and Medicaid Services (CMS) were tasked with defining “meaningful use” objectives and measures: stage 1, implemented in 2011, focused on data capture and sharing, stage 2 in 2014 on promoting exchange of health information, and stage 3 in 2016 on improving outcomes. The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) has further incentives for advanced EMR functionality and use beginning in 2017.

Resident continuity clinics and academic medical centers have been early adopters of EMRs, and at this point, the vast majority of resident clinics use an EMR: a 2016 Society of General Internal Medicine (SGIM) survey of continuity clinic

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directors found that 97.4% of resident continuity clinics had an EMR in place. Of those, 54% had a single EMR for both inpatient and outpatient visits, 29.7% had a different but linked EMR, and 10.8% had completely separate inpatient and outpatient EMRs.

## Learning Objectives

1. Understand the training needs of residents in effective EMR usage, both in and out of the exam room.
2. Recognize the use of EMRs in facilitating team-based care and patient communication and understand best practices in these areas.
3. Demonstrate the ability of EMRs to track performance measures and enhance population health management.
4. Identify key pitfalls of current EMR systems and ways to improve safe use.

## Outline

- **Training Residents or New Users in EMR**
  - Transition from Medical Student EMR Use
  - EMR Training in Orientation and beyond
- **Optimizing Clinic Notes**
  - Electronic SOAP Notes
  - New Note Formats
  - Best Practices in Electronic Documentation
- **Evaluating Resident Use of EMR**
  - EMR Skill Development
  - RIME Scheme for Evaluation of Documentation
- **EMR and Patient Interactions**
  - EMR Use During Patient Encounters
  - Best Practices for Patient-Physician-Computer Interaction
  - Pre-writing notes
- **Using EMR for Patient Communication**
  - Patient Messaging
  - Professionalism in Electronic Patient Communication
  - Handling Inappropriate Communication

- **Using EMR for Team Based Medical Care**
  - Intraprofessional Communication
  - Team Based Management of Results
    - Using Pools
- **Using Dashboards for Population Health and Performance Measures**
  - Delivery of Performance Measures
  - Advantages of Dashboards
    - Care Delivery
    - Time Management
    - Batch Actions
  - Dashboard Features
  - Training and QI Use
- **Pitfalls and Safety Concerns with EMR Use**
  - EMR Pitfalls
    - Inaccurate Documentation
    - Alerts and Ordering Errors
    - Medication Reconciliation Errors
    - Resident Clinic Work Flows
  - Combatting Safety Concerns

## **Training Residents or New Users in EMR**

Training residents in ambulatory EMR use can be challenging as inpatient and outpatient EMR work flows are often very different. PGY-1 residents will have a variable level of comfort with the EMR depending on whether they used a similar EMR as a medical student. For some residents, they will be learning a completely new system. In addition, new faculty hires may need to be trained in a new EMR system.

PGY-1 residents trained in medical schools with EMRs may lack experience in directly placing orders. Prior to the advent of electronic orders, it was common practice for medical students to write out orders and then have a resident or attending cosign them, preparing students for clinical practice. This is still possible in many EMR systems, but it is often easier for the residents to place the orders themselves in the EMR, rather than waiting for the medical student to place them. This lack of experience can make the first few months of clinic more challenging.

PGY-1 residents are typically introduced to the EMR through some type of training during intern orientation. Training often includes computer-based practice sessions in a training or “playground” context. Residents may also find handouts with “tip sheets” useful. Most of the training usually happens on the job during the first several clinic sessions. Shadowing senior residents or attendings can help interns learn how to efficiently use the EMR. We have found it helpful to also have an EMR refresher session a few months into the intern year. Some programs have incorporated a clinic training “boot camp” into their intern orientation time [3].

## Optimizing Clinic Notes

The twenty-first-century clinic note simultaneously serves a multitude of purposes: to document observations, assessments, and plans; to communicate with other members of the healthcare team; and to justify billing to third-party payers. Since the late 1960s, the subjective, objective, assessment, and plan (SOAP) note has been the standard note format for clinical encounters. With the widespread migration to EMRs, the SOAP note has simply been converted to electronic format. Yet even the basic order of the SOAP note has been criticized with physician surveys and eye-tracking programs showing that the assessment and plan portions are typically read first and reviewed the longest [4–8]. This fundamental flaw, in addition to others relating to documentation efficiency, raises questions as to whether the SOAP format is still able to meet the demands of the modern clinic note.

Little research exists on how to teach residents to be effective note writers or what even defines a high-quality note. Instruments have been published that aim to measure note quality, but these are often grading rubrics applied to each historical note element rather than appraising the quality of the note as a whole [9, 10]. Such instruments do not address redundancy, extraneous information, or the fact that certain sections of the note, such as the review of systems (ROS), are often considered unhelpful and add to clutter. Likewise, key components of documentation such as care coordination, which do not traditionally have a dedicated section, may be overlooked.

Structured formatting of documents can impact the ability of information to be communicated to physicians and patients. In addition to standardizing documentation, new types of note formats are being developed and are in the process of being evaluated. In 2012, the University of Colorado introduced reverse note templates (APSO) to 13 outpatient clinics [11]. Overall, a majority of authors and readers of APSO notes were satisfied with the new format. Others advocate for problem-oriented charting with progress notes for each chronic condition as a means to facilitate longitudinal management.

Until further research can guide note-writing practices, standardization should be encouraged to allow for information to be more easily discovered irrespective of the note author and to ensure documentation is compliant with billing needs. Residents should be encouraged to be selective in their inclusion of data and to avoid “note bloat.” Likewise, they should avoid or be assiduous when using copy/forward [12]. Since patients may be seen by different resident physicians as well as by nurse practitioners and physician assistants, including documentation about what should be done at subsequent visits may facilitate improved continuity of care.

## Evaluating Resident Use of EMR

There have been few studies of how to effectively evaluate how well residents are using the EMR. Nuovo et al. conducted an assessment of 19 EMR skills on all 68 of their PGY-1 residents at the University of California Davis Medical Center [13]. They found that 3–4 months after completing EMR training, most of the interns demonstrated competency in the EMR skills tested. They also found that for at least one of the measures, residents’ performance improved over time, showing an improvement in medication reconciliation from 57% in July 2012 to 80% in November 2012.

Stephens et al. propose using the RIME (reporter-interpreter-manager-educator) scheme to assess and evaluate learners’ use of EMR. The EMR-specific skills are also tied into ACGME core competencies (see Table 1). This strategy can help clinic attendings assess their residents’ competency in EMR use over time [14].

**Table 1** The RIME/EMR scheme in the context of the Accreditation Council for Graduate Medical Education core competencies in medical education

Level	Clinical skills <sup>a</sup>	EMR-specific skills <sup>a</sup>
Reporter	• Takes ownership of the patient’s findings <sup>1,5</sup>	<i>Clinical data entry</i>
	• Differentiates normal and abnormal <sup>2</sup>	• Records the complete medical history and exam <sup>1,2</sup>
	• Accurately obtains and reports basic information from history and physical exam <sup>1,5</sup>	• Reliably completes S/O sections of SOAP note <sup>1,4</sup>
	• Clearly communicates clinical facts about patients <sup>1,4</sup>	• Records own findings rather than “cut and paste” <sup>5</sup>
	• Answers the “what” questions about patient care <sup>2</sup>	• Reviews medical history in EMR for relevant conditions <sup>2,3,6</sup>
	• Uses appropriate clinical language (semantic competence) <sup>4</sup>	• Respects confidentiality and privacy <sup>5</sup>

(continued)

**Table 1** (continued)

Level	Clinical skills <sup>a</sup>	EMR-specific skills <sup>a</sup>
Interpreter	<ul style="list-style-type: none"> <li>Identifies and prioritizes new clinical problems<sup>1,3</sup></li> </ul>	<i>Data assessment</i>
	<ul style="list-style-type: none"> <li>Constructs a differential diagnosis related to each clinical problem<sup>2,3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Reliably completes A section of SOAP note<sup>2,4</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Interprets data, including laboratory and radiology<sup>2,3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Interprets new ancillary data, including laboratory, radiology, and consultative remarks, and incorporates into note<sup>1,2,6</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Takes ownership for addressing the “why” questions to explain changes in patient status<sup>1,4,5</sup></li> </ul>	<ul style="list-style-type: none"> <li>Independently constructs patient problem list<sup>1,2,3</sup></li> </ul>
		<ul style="list-style-type: none"> <li>Discusses clinical assessment and diagnostic possibilities<sup>4,6</sup></li> </ul>
Manager	<ul style="list-style-type: none"> <li>Activated learner, suggests potential management options<sup>3,4</sup></li> </ul>	<i>Data assimilation</i>
	<ul style="list-style-type: none"> <li>Plans include several appropriate diagnostic and treatment options<sup>1,3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Constructs P section of SOAP notes independently<sup>2,3</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Takes ownership of answering “How do we solve this?” questions about patient care<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Uses available clinical information to request appropriate ancillary requests and consultations<sup>3,4,6</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Treatment plan considers relative value of different options<sup>1,6</sup></li> </ul>	<ul style="list-style-type: none"> <li>Articulates a logical and semantically competent therapeutic plan<sup>1,4</sup></li> </ul>
	<ul style="list-style-type: none"> <li>Individualizes plan to patient needs and circumstances<sup>1,3,4</sup></li> </ul>	<ul style="list-style-type: none"> <li>Inserts images and text into EMR to complement plan<sup>4,6</sup></li> </ul>
		<ul style="list-style-type: none"> <li>Decides on appropriate follow-up interval based on documented care plan<sup>1,2,6</sup></li> </ul>
Educator	<ul style="list-style-type: none"> <li>Takes ownership for educating self, colleagues, and patients<sup>3,4</sup></li> </ul>	<i>Clinical decision support</i>
	<ul style="list-style-type: none"> <li>Searches literature to cite best available evidence related to patient care<sup>1,2,3,6</sup></li> </ul>	<ul style="list-style-type: none"> <li>Uses embedded clinical support tools to access current evidence related to patient care<sup>1,2,6</sup></li> </ul>
		<ul style="list-style-type: none"> <li>Uses information to provide patient-centered education specific to individual patient needs<sup>1,3,4</sup></li> </ul>
		<ul style="list-style-type: none"> <li>Modifies care plan in accordance with best available evidence<sup>2,3,6</sup></li> </ul>

Table from: Stephens, Mark; Gimbel, Ronald; Pangaro, Louis. *Academic Medicine*. 86(1):11–14, January 2011. DOI: <https://doi.org/10.1097/ACM.0b013e3181ff7271>

<sup>a</sup>Competencies are indicated for each skill by the following numbers: 1 = patient care; 2 = medical knowledge; 3 = practice-based learning; 4 = communication skills; 5 = professionalism; 6 = system-based practice

## EMR and Patient Interactions

Studies of the effect of the EMR on physician interaction with patients have yielded mixed results. Typing and entering data into the EMR can affect the physician's ability to maintain eye contact with the patient. Residents and physicians may also rely more on the data from the computer rather than eliciting a full history from the patient themselves. There has been little research on how to effectively train residents to use the EMR effectively during patient visits.

Residents should be taught some basics on using the EMR while maintaining patient rapport such as:

- Spend the first few minutes “computer-free.”
- Have the patient sit where the resident can both look at the patient and the computer screen.
- Explain to the patient what you are doing.
- Turn the computer screen toward the patient to review labs or imaging studies with the patient.
- Turning the computer screen toward the patient can also be helpful during medication reconciliation.
- Use the EMR to note conversational social history such as what kind of work they do, hobbies, names of spouses or children, etc. These can be helpful to refer back to at the next visit and help establish ongoing rapport.

It's still unclear whether the overall impact of the EMR on the patient relationship is positive or negative. One study by Taft et al. found that in a patient simulation exercise, resident communication was better using an EMR on a laptop than using a paper chart [15].

Clinic attendings have a responsibility to help the residents remember to focus on the patient rather than focusing too much time and energy on the chart or the “iPatient” as has been described by Abraham Verghese [16]. Often residents feel overwhelmed by the amount of data in the chart and spend too long reviewing this, while the patient is left sitting alone in the exam room. One remedy for this and an advantage of the EMR is to have residents review patient information prior to clinic and/or “pre-write” notes.

## Using EMR for Patient Communication

Many EMRs allow direct patient messaging. This can be especially helpful for communication with resident clinic PCPs as residents can respond to these messages when they are not physically in continuity clinic. In our clinic, messages are first

triaged by medical assistants, and those messages with “symptom complaints” are routed directly to triage nurses to avoid any delay in care.

Residents should be reminded that as all patient communication is stored in the EMR, a professional language and a respectful tone are important. Many clinics are moving to an “open notes” system where patients can directly access their clinic notes. This allows the patient to play a more active role in their care. As notes become another means of patient communication, residents will need to be trained to write notes that convey all the needed information in a way the patient is likely to understand.

Residents may also need training in how to handle patient communication that may be deemed inappropriate. We encourage any residents who are receiving messages from patients that are antagonistic or otherwise inappropriate to promptly alert their clinic attending.

## **Using EMR for Team-Based Medical Care**

The EMR can be a useful tool for team-based medical care. Residents can communicate directly with members of their care team such as medical assistants, RNs, pharmacists, etc. Residents can also use messaging systems within the EMR to communicate with consulting specialists which can be quite educational. Residents and staff should receive training on how to use direct patient messaging appropriately, keeping in mind that messages become part of the patient’s medical record.

Each clinic will need to have a system for residents, faculty, and/or staff to indicate that they have taken care of a particular lab result or imaging result. In EPIC, the result note function can be used to indicate what action has been taken on a particular result. This can be particularly helpful for facilitating a team approach to patient care.

The EMR can also allow for cross coverage between residents when they are not available. Many programs organize residents into “firms,” a small group of residents that cover each other’s patients. Residents can then check the inboxes of the other residents in their firm as needed. Labs and messages can also be sent into “pools” allowing multiple user access.

## **Using Dashboards for Population Health/Performance Measure**

The ACGME requires “evaluation of performance data for each resident’s continuity panel of patients relating to both chronic disease management and preventive healthcare” [17]. EMRs greatly facilitate the ability to compile data on resident

performance measures. This data may be obtained from individual reports or may be compiled into a comprehensive “dashboard.”

Both reporting performance measures and the use of dashboards have been shown to improve adherence to guidelines and delivery of care such as appropriate prescribing of corticosteroid inhalers in asthma, adherence to COPD indicators, and communication of CT results to patients [18]. Their use has been associated with improved diabetes process measures as well as hard outcomes, such as reduction in hemoglobin A1c levels [19].

In terms of work flow, dashboards have been shown to reduce the time needed to find key diabetes care elements within the medical record, increase the accuracy of the data identified, and reduce physician propensity to retest when the data is not easily found [20].

While dashboards can be displayed within the EMR or separately, providers have been shown to prefer integration and the ability to drill down into individual patient records. In addition, batch actions can allow providers to send letters or enter orders for a group of patients at once.

Resident dashboards can be configured to provide components displaying:

- Panel size and demographics
- Population health metrics
- Patient and provider continuity data
- Patient appointments and referral follow-up
- Emergency department visits and admissions
- Resident charting such as visit closure, medication reconciliation, and lab review

Resident and preceptors training in dashboard use can demonstrate display of performance metrics, benchmarking criteria, drill down capability, and actionable features. EMR reports and dashboard displays can also provide impetus for quality improvement projects and enable residents to obtain meaningful population data.

## **Pitfalls/Safety Concerns with EMR**

While EMRs reduce certain types of errors such as illegible or incomplete prescriptions, they also introduce new types of errors in documentation, order processes, and lab follow-up of which users may not be aware. Often these errors are not apparent.

Because most EMRs allow for templated notes which automatically populate data from within the electronic record, incorrect data entry from multiple sources can impact documentation. Copying and pasting can lead to inaccurate or outdated information being perpetuated in the medical record. Physical exam macros that are pre-populated make it easy to accidentally include parts of the physical exam that were never done or falsely document normal findings. Likewise, the use of standardized phrases can result in oversimplification of complex medical information.

Errors in ordering can result from cognitive overload from overly busy screens, overreliance on EMR-prompted dosages, and faulty decision support tools [21, 22]. There is concern that reliance on electronic alerts or reminders may cause learners to be less likely to look up potential drug interactions prior to prescribing. Likewise, too many alerts and pop-ups may lead to a sense of alert fatigue that then leads people to ignore the alert.

Medication reconciliation is especially susceptible to errors. In an EMR, many providers access the same medication list, but as a result, there may be no ownership for updating the med list. Poor reconciliation of medications over time or with transitions of care leads to inaccurate medication lists. In addition, currently in 2016, there is electronic transmission of prescriptions to pharmacies but no similar process of transmitting a message to the pharmacy when discontinuing a medication. Fixing this failure in electronic “deprescribing” medications is one of the mandates within MACRA and should be addressed by updates to pharmacy software and protocols in 2017–2018.

Finally, in resident clinic, there are unique concerns regarding creation of safe work flows for times when residents are on other duties or away. This includes having mechanisms in place for routing of prescription refills, patient messages, and laboratory and radiology results. Often resident clinics rely on attaching in baskets or creating “pools” to ensure results are appropriately reviewed. However, these solutions generate concerns about responsibility, patient safety, and education when the ordering provider is not the person who checks the labs.

Safety in resident clinics involves, first, generating a robust system for reporting errors and safety concerns. Comprehensive Unit-based Safety Program (CUSP) teams can review errors and adopt QI projects aimed at improving identified safety issues [23]. We recommend close collaboration between residents, staff, administration, and IT with attention to:

- Standardization of note templates and copy forward practices
- Development of preference lists and order sets
- Protocolling medication reconciliation and medication discontinuation procedures
- Creating EMR work flows for refills, messages, and labs

## Conclusion

Training of residents in effective use of EMRs in patient care requires attention to optimizing documentation, maintaining patient-physician interactions, ensuring safe management and communication of results, and delivering performance measures to enhance population health. Best practices around these areas and means of evaluation are still evolving, and residency programs have the opportunity to be leaders in incorporation and improvement of health IT.

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# Chapter 17

## Medical Students in Clinic



Achilia Morrow and Kelly White

### Introduction

Academic practices are often closely aligned to medical schools; thus, medical students will often be in clinic. Medical students participate in clinic during their internal medicine clerkships, longitudinal experiences, and ambulatory electives/selectives. Resident clinics often have students as well, as evidenced in the 2016 Medical Resident Clinic Director's Interest Group (MRCDIG) Survey, where 65% of respondents reported they had medical students in their clinics [1]. As a result, it is likely that part of your responsibility as clinic director will be integrating and providing a learning experience for medical students. This can create unique challenges as:

- Faculty must meet goals as set forth by governing bodies and associated medical schools.
- Increasing productivity pressures for faculty affect their availability to teach and your ability to recruit faculty who want to teach.
- Faculty need resources to continue to learn and improve their teaching skills.
- When residents are present, their schedules are often not aligned with the students making it more difficult to integrate both groups of learners into the clinic.

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This chapter focuses on the logistics of having medical students in clinic, addressing the challenges listed above, and providing a rewarding experience for students, faculty, and residents.

## Learning Objectives

1. Identify national guidelines for learning goals for students in ambulatory settings.
2. Identify standards of pertinent regulatory organizations relevant to medical student education (EMR, JHACO, LCME, ACGME, medical school).
3. Describe successful models of incorporating students into clinic.
4. Describe preceptor responsibilities.
5. Recognize successful ambulatory teaching models including feedback and evaluation.
6. Describe successful models of residents as teachers.
7. Identify and describe faculty benefits of teaching.
8. Recognize common problems and identify solutions.

## Outline

- Learning goals for students
- System logistics and regulatory organizations
- Models of incorporating students into clinic and continuity
- Preceptor responsibilities:
  - Orientation
  - Setting goals and expectations
  - Priming
  - Teaching and learning models
  - Feedback
  - Evaluation
- Residents as teachers
- Faculty benefits
- Troubleshooting and common problems

## Learning Goals for Students

The clerkship or rotation director will likely distribute information to you including learning goals and objectives for the students. Learning goals and objectives for students in the ambulatory setting are guided by the Liaison Committee on Medical

Education (LCME), the accrediting body for degree programs leading to an MD. For students, the CDIM-SGIM Core Medicine Clerkship Curriculum Guide provides additional guidance on content as well (CDIM, Clerkship Directors in Internal Medicine; SGIM, Society of General Internal Medicine). For those who work with residents, the guide also cross-references general clinical core competencies for students with the six Accreditation Council for Graduate Medical Education (ACGME) core competencies for residents [2]. (The ACGME is the accrediting body for residency programs.) The guide also includes “training problems” that cover clinical topics to which students should be exposed.

### CDIM-SGIM training problems for students [2]

Healthy patients	Signs, symptoms, or abnormal laboratory values	Known conditions
Health promotion, disease prevention, and screening	Abdominal pain	Acute MI
	Altered mental status	Acute renal failure and CKD
	Anemia	Common cancers
	Back pain	COPD/obstructive airways disease
	Chest pain	Diabetes
	Cough	Dyslipidemias
	Dyspnea	Heart failure
	Dysuria	HIV infection
	Fever	Hypertension
	Fluid, electrolyte, and acid-base disorders	Liver disease
	GI bleeding	Major depression
	Knee pain	Obesity
	Rash	Pneumonia
	Upper respiratory complaints	Rheumatological problems
		Smoking cessation
		Substance abuse
		Venous thromboembolism

The Association of American Medical Colleges (AAMC) also discusses medical student education. In 2014 the AAMC developed the “Core Entrustable Professional Activities for Entering Residency” (EPAs) that every student should be able to perform with supervision when they graduate [3]. Those working with residents will note that the EPAs align with ACGME competencies and milestones. Below are the EPAs with ACGME competency-based milestones listed beside them (if applicable) [3, 4]:

- EPA 1: Gather a history and perform a physical examination (PC1).
- EPA 2: Prioritize a differential diagnosis following a clinical encounter (PC1).
- EPA 3: Recommend and interpret common diagnostic and screening tests (MK2).
- EPA 4: Enter and discuss orders and prescriptions (PC4).

- EPA 5: Document a clinical encounter in the patient record (ICS3).
- EPA 6: Provide an oral presentation of a clinical encounter (ICS2).
- EPA 7: Form clinical questions and retrieve evidence to advance patient care (PBLI4).
- EPA 8: Give or receive a patient handover to transition care responsibility (SBP4).
- EPA 9: Collaborate as a member of an interprofessional team (SBP1).
- EPA 10: Recognize a patient requiring urgent or emergent care and initiate evaluation and management (PC3).
- EPA 11: Obtain informed consent for tests and/or procedures (ICS1).
- EPA 12: Perform general procedures of a physician (PC4).
- EPA 13: Identify system failures and contribute to a culture of safety and improvement (SBP2).

(PC, patient care; MK, medical knowledge; ICS, interpersonal communication skills; SBP, system-based practice; PBLI, problem-based learning and improvement)

Thus, for those already working with residents in clinic, accomplishing the goals and objectives for students should not be “additional work” but reflect what you are already doing.

Based on AAMC’s EPAs, students will be working toward being able to perform their goals with supervision (i.e., being ready for internship). Specific goals will also vary depending on when a student has his or her ambulatory experience. For example, second- or early third-year students may be focused on accurately collecting and organizing information, while more advanced students will be expected to interpret results and perhaps suggest management plans. The RIME method, described in a later section, can be helpful in describing the goals a student is expected to achieve while on your rotation.

## **System Logistics-Regulatory Organizations**

The LCME requires those supervising or teaching medical students, regardless of setting, to be familiar with the learning objectives of the course and to be prepared for their role in teaching and assessment [5]. All providers involved in teaching students in clinic should have access to the course learning objectives, including residents, fellows, and other faculty or instructors involved in teaching. In addition, the LCME requires that the supervising clinicians need to provide appropriate supervision of the students in the clinical setting and be comfortable with providing both formative and summative feedback during the rotation. Supervising faculty must be aware of and willing to employ various tools of measurement of students’ achievement of course objectives by means such as direct observation according to the schools’ requirements. At the end of the rotation, a timely evaluation must be completed including a narrative summary of the students’ performance.

In addition to LCME requirements, the school of medicine may have specific requirements for teaching students. For example, the University of Colorado SOM requires all faculty who are involved in teaching and assessing medical students to have a faculty appointment with the school of medicine. Additionally, many schools may require specific faculty development focusing on feedback and assessment of students. Being aware of the schools' requirements and appropriately training faculty will be essential for success. The hospital or hospital organization may have additional rules regarding students in the clinical setting. They may require proof of immunizations, drug testing, EMR training, a letter of good standing, or other documentation. Often this can be handled by the student, the clerkship coordinator, or the school, but an awareness of the rules can help you appropriately guide the students. Depending on your clinic's affiliation with a hospital, the Joint Commission on Accreditation of Healthcare Organizations (JACHO) standards may also apply. According to JACHO, a medical student has no legal status as a provider of healthcare services, which may have a direct effect on the role that student can take in delivering healthcare and documenting in the EMR [6]. Awareness of Medicare billing rules is equally important. Medicare rules state that any student contribution to a billable service must be performed in the physical presence of a faculty or resident. Students can document in the medical record; however, the teaching faculty must re-document everything for billing purposes with the exception of review of systems (ROS) and past social and/or family history (PSFH) [7]. Individual institutions may have additional rules regarding medical student documentation, and these may vary by clinic and institution. Having knowledge of the expectations of the various governing bodies, both national and local, and incorporating these into the orientation and structure of the clinical experience will help promote success.

If residents are present, incorporating students into resident clinic requires awareness of the different regulatory associations' rules and regulations. The ACGME program requirements state that the learner (residents and students) to faculty ratio in resident clinic cannot exceed 4:1, so this will need to be considered when adding students [8]. The LCME standards expect that residents be prepared for their roles in terms of teaching and evaluation of students. The LCME standards also expect that these residents be familiar with the specific course (clerkship, rotation) goals and objectives [8]. Adequate preparation of the residents is essential and may benefit from good communication between clerkship directors and clinic directors.

## **Models of Incorporating Students into Clinic and Continuity**

Models include:

1. Private clinic: In this model the student sees patients on the faculty's private panel. Advantages include that the faculty knows the patients and can better choose which ones are to be seen by students. For efficiency, at least two rooms

are needed if possible. This allows the student to see one patient, while the preceptor may see up to three patients in the other room (wave scheduling). This process is described in more detail in Alguirre's chapter on "Patient Scheduling" in his 2008 book and allows the student more time to see the patient without delaying clinic flow [9].

2. **Learner clinics (fellows, residents):** This describes clinics where multiple learners are being precepted by supervising faculty. Students can be added to the clinic as additional learners as long as the learner to faculty ratio remains 4:1. The director and precepting faculty will need to make a decision whether the student has his/her own patients and presents directly to the preceptor or is paired with an upper-level learner. This latter method allows the resident to do initial precepting and direct teaching before the patient is presented and can make documentation easier on faculty. Students may be paired with one resident per session or work with different residents based on patient selection.
3. **Incorporate students into clinic teams:** In this model, students are incorporated into clinic teams to improve continuity, improve interprofessional collaboration, and improve efficiency of patient care. This can represent a combination of any of the other models, with the idea that the student remains on the same team in clinic, whether they are working with faculty individually, with residents, or seeing their own student panel with the faculty. Students can function on different interprofessional levels, working with medical assistants to room patients, obtain vital signs, and perform medication reconciliation, as permitted by the individual institution. This increases students' autonomy, perceived value to the team, and can improve efficiency of patient care.
4. **Student-only clinic:** In this model, faculty precept only students. Panels of patients are created for students to see. This model may work best as a longitudinal model. Remember preceptor will be responsible for all billable documentation with exception of family history, social history, and review of systems (ROS) [10].

#### Continuity:

As director, you will need to decide on priorities for providing continuity: student-faculty continuity, student-resident continuity, student-patient continuity, or exposure to a variety of teaching styles. What is feasible will also depend on faculty available to precept and how often students will attend clinic. If present, the ability to involve residents and whether student and resident schedules are aligned (e.g.,  $x + 1$ , longitudinal) will also affect feasibility. As many residency programs move toward block scheduling (e.g.,  $X + Y$ ), many medical schools are incorporating longitudinal clerkship experiences in the third year. Discuss with the rotation director and your faculty your proposed method for integrating the student to ensure it will meet the learning objectives of the rotation.

## Preceptor Responsibilities

### *Orientation to the Clinic and the Team*

Although students may receive an overall orientation at the beginning of their rotation, it is important that each student be oriented to each specific clinic as well. This will often need to be done by the clinic director or his designee. The purpose of the orientation is to:

*Familiarize students with your clinic.* This includes informing students where things are physically located. It includes how are patient rooms structured, where supplies are kept, and where physicians, nurses, and other staff sit. Even things like the location of bathrooms will be useful to students. This is going to be their medical home for the next few weeks, and it is helpful to know where things are.

*Introduce them to the team.* This is an excellent time for students to be made aware of the importance of everyone in the clinic; medicine is increasingly becoming an interprofessional discipline. Explain the roles and job of various personnel, especially those they will be working with closely. Also if you are going to be their primary preceptor, it is a good time to explain your role and how you came to be a primary care physician. Ambulatory rotations will hopefully persuade more students to consider primary care as they meet role models they want to emulate.

*Explain clinic flow.* Describe the process of how things work from the time a patient checks in to the time a patient checks out. They will also need to know their role in this process.

### *Setting Goals and Expectations*

#### **Students**

Goals and expectations for the student during the rotation should be discussed during orientation or shortly afterward. Overall learning goals are covered earlier in the chapter. You will want to review these as well as goals specific to your clinic, student goals, and other logistics:

*Clinic goals.* Your patient population may lend itself to specific goals not covered in the overall learning objectives. For example, if you are working in a Women's Health clinic, your goals might include diagnosis and management of amenorrhea and/or management of menopausal symptoms.

Student goals. The student should have goals and expectations of what they would like to learn from the rotation as well. Eliciting these from the learner will be an important part of developing an individualized educational plan and helping the student have a rewarding experience.

“Logistical” goals. Discuss with students the number of patients to be seen each day and what is expected in terms of documentation. Consider including the following information:

1. Number of patients expected to be seen
2. Time frame in which patients are to be seen (e.g., 2–4 patients in half-day session)
3. Templates to be used in the EMR (if applicable)
4. Approach to the chart
5. Different types of patient visits (e.g., new, urgent, follow-up)

### **Faculty, Residents, and Staff**

Your faculty and residents who are working with the students must also be oriented to the goals and expectations listed above. If the student is to work with a resident, the resident will also need to know what is expected of them in addition to being familiar with the objectives for the students. Although residents are very familiar with working with students in the inpatient setting, they may be less so with students in the ambulatory setting. Expectations should be clearly outlined as to what role they will have in supervising the student, who will be responsible for documentation, and what role they will have in the evaluation of students.

Staff should be informed that there will be students in the clinic and how they will be expected to interact with students. For example, will they be introducing the student to the patients? Also if they are to take a role in the evaluation process, they should be informed of this as well.

### ***Priming the Student***

Depending on the time of year, many students may not have been in the ambulatory setting before. Even more experienced students may need specific instruction of what is expected of them. In “priming” the preceptor provides the student with information to make the encounter more successful, focused, and time efficient before the actual clinical encounter. Information imparted to the student may include:

*Patient information.* This can include both specifics about the patient (if known) and reasons for the visit. (“Mrs. Charlie is a 65 yo lady who I have been seeing for years. She is often accompanied by her daughter. Today she is here for a follow-up of her diabetes.”) The chief complaint may also be discussed with the student prior to him/her entering the room.

*The task.* Describe what you would like the student to do and how much time is allotted to complete it. (“I would like you to take 3 minutes to review the chart, then take 10 minutes to do a focused history and physical on the patient. Please make sure to ask about her glycemic control and do a foot exam.”)

*Precepting encounter.* Inform the learner what will be expected after the task is completed. Where they will meet you and what information you will want to know should be answered. (“After you finish, meet me in the conference room and give me a 3-minute summary of history and physical findings. We will then discuss a plan for her diabetes and see the patient together.”)

## ***Teaching and Learning Models***

How one teaches in the ambulatory setting is dependent on level of learner, patient population, and time constraints. Compared to inpatient, there is a higher volume of patients seen in shorter periods of time in the outpatient setting. The challenge of allowing the student independence and time to learn is often balanced with the need for efficiency in a busy practice. Models of teaching that allow time efficiency, active learning, and focusing on specific teaching points have been developed. The list below is not exhaustive but represents some common methods of teaching/precepting in the outpatient setting:

*“One-Minute Preceptor.”* This method allows preceptors to ask questions regarding the diagnosis and to probe the learner’s thinking. (It “diagnoses the patient and the learner.”) It consists of five steps and does not require the learner to know the method. Although originally designed to discuss diagnoses, it can be applied to other aspects of a patient presentation as well (e.g., history, interpretation of abnormal physical findings and labs, patient follow-up, etc.) [11].

### **One-Minute Preceptor**

Microskills step	Example
1. Get a commitment	“What do you think is the cause of his abdominal pain?”
2. Probe for supporting evidence	“Why do you think the patient has dyspepsia?”
3. Provide general rules	“Remember to always ask about weight loss when someone is presenting with chronic abdominal pain”
4. Reinforce what was done correctly	“You characterized the pain well including asking about quality, intensity, radiation, and alleviating and exacerbating factors”
5. Correct mistakes	“When pain is located on right side, need to consider gallbladder and liver etiologies of pain as well”

*SNAPPS.* Originally described by Wolpaw in 2003, SNAPPS is a learner-centered model that focuses on differential diagnosis [12]. The learner must be trained in the

model in order for it to be successful. As it requires higher-level thinking, it can be challenging for early learners. The steps of the model are:

- Summarize. The learner is asked for summarize the case.
- Narrow the differential. Learner presents two to three conditions in the differential diagnosis that can explain the condition of the patient.
- Analyze the differential. The learner explains what he thinks is the actual diagnosis and why.
- Probe the preceptor. The learner then asks any specific question he has about the case.
- Plan management.
- Select a case-related issue for self-directed learning. Learner chooses an issue related to the case to explore further.

The model assumes the learner is already proficient at oral presentations as it focuses on the assessment and plan.

*Reflections/educational prescriptions.* This learning activity is centered around unanswered questions relevant to a patient seen. Students are asked to further explore a clinical question (e.g., “What can be done for treatment of a patient with fatty liver?”) or reflect on a patient encounter (“What factors do you think might be affecting Mrs. S’s ability to adhere to her medical regimen. What could be done to help?”). This method allows the student to continue thinking about the patient outside the patient encounter and can be reviewed at a later time [13–15].

*Observation.* This method can be used in several ways to encourage active learning by the student. Examples include having the learner observe and scribe, while the preceptor performs the history and physical. To do this effectively, the student has to assimilate information. Afterward the student and preceptor can generate a problem list and discuss the assessment and plan.

Traditional observation can be more active as well if planned. For example, the student can be asked to observe the preceptor performing a specific task. This can then be discussed. Finally, the preceptor can observe the student performing a specific skill. This can be taking a history, performing an exam, or counseling a patient. In general, observations eliminate the need for the preceptor to repeat portions of the history and exam separately from the student.

*Teacher reflection and resources.* One final important aspect of teaching is reflection by the teacher of what methods work well and why. If several faculty have teaching duties, consider sharing ideas and developing methods together.

More information about teaching in the ambulatory setting can be found in review articles; a few more recent ones are listed in the reference list [16, 17]. Other sources include faculty development programs at your institution, sessions at regional and national meetings (including SGIM), and online modules such as [TeachingPhysician.org](http://TeachingPhysician.org).

## ***Providing Useful Feedback***

Feedback from clinical teachers is needed for learners to improve. Students should receive both formal and informal feedback from those involved in their education. Explicitly stating that feedback is being given can help learners realize they are receiving information to improve their performance. Consider prefacing informal feedback with statements such as “I want to give you feedback about” or “Here is feedback regarding...” Formal feedback sessions, which should happen at least twice during a rotation, should reference goals and objectives set at the beginning of the rotation. Setting aside time for the formal feedback sessions can be useful to ensure that they happen in an unrushed manner (and that they get done)!

An article featured in *Medical Teacher* in 2012 gave “tips” for effective feedback [18]:

1. “Establish a respectful learning environment.” If both parties feel comfortable, feedback will be easier. The learner should view feedback as a chance to reflect and improve, not just be told what he/she is doing wrong.
2. “Communicate goals and objectives for feedback.” Decide what should be the purpose or outcome of the conversation. Agenda setting can be done by the preceptor or the learner. Examples of goals can be how to improve an exam skill, discussing progress made toward goals set at the beginning of the rotation, or improving the formatting of notes.
3. “Base feedback on direct observation.” Specific examples of what was done correctly or incorrectly should be used and given to the learner.
4. “Make feedback timely and a regular occurrence.” Again, formal feedback sessions will be expected halfway thru the rotation and at the end. However, informal feedback should happen throughout the rotation.
5. “Begin the session with the learner’s self-assessment.” Allow time for the learner to assess and verbalize how he thinks he is doing.
6. “Reinforce and correct observed behaviors.” This is best done in a timely manner when possible.
7. “Use specific, neutral language to focus on performance.” Be nonjudgmental.
8. “Confirm the learner’s understanding and facilitate acceptance.” Giving feedback requires the clinician to be “in tune” with the learner to ensure the learner is “getting it.”
9. “Conclude with an action plan.” A plan should be made that informs the learner of specific things that should be done to improve. “Reading the sections relevant to your patient’s diagnosis in UpToDate after each patient encounter” is more useful than “read more.”
10. “Reflect on your feedback skills.” Giving good and useful feedback is a skill that needs to be practiced. Allow time to determine what was done well and what needs to be improved.

11. “Create staff development opportunities.” Faculty development opportunities may be available and/or can be developed for those who would like further information regarding giving feedback.
12. “Make feedback part of institutional culture.” Encourage learners to ask for feedback and preceptors to give it even when unsolicited or unscheduled.

## ***Evaluation of the Student***

Although many forms of evaluation may be used to give students a grade, the clinical preceptor evaluation is a significant component. When agreeing to take students in your clinic, it needs to be determined what is expected in terms of evaluation.

### **Logistics**

*What evaluation forms will need to be completed?* In addition to a summative evaluation form, are there formative or additional ones, such as an observation form that need to be done as well? Most clerkships include midpoint feedback for students, and you may be asked to complete this. Ask for a copy of the evaluation form(s) beforehand.

*Who is expected to complete the evaluation?* Whether the evaluation will be summative from all those involved with the student or individual should be determined either by the rotation or clinic director. For example, if the student works with a resident, will both faculty and resident do an evaluation or will it be collective? This consideration may not be applicable in all situations.

*Are evaluations criterion-based or normative?* Evaluations can be criterion-based or normative based. In normative evaluations, learners are compared against those at a similar stage, whereas in criterion-based, the same standards are used regardless of when a student rotates. Thus students just starting their clinical rotations are likely to perform at a lower level (and receive a lower “score”) than ones who are months away from graduation. Regardless, the same scale is used. Usually following the anchors for items to be evaluated should guide the evaluator. If unclear, ask the clerkship/rotation director for instructions on how forms are to be completed. Most medical schools use criterion-based grading for their students [19].

Student evaluations have often mirrored resident evaluations in using the six core competencies. However, similar to resident evaluations, student evaluations are increasingly moving toward being milestone and competency-based.

### **Comments and RIME**

Comments are often the most useful part of the evaluation. Giving specifics and examples of what the student did well, how to improve, and concerns are invaluable in both evaluation and feedback. The RIME framework is a tool many programs

have integrated into evaluations (and feedback) to help specifically define what knowledge, skills, and attitudes the student has attained [19, 20]. The RIME framework is as follows:

- **Reporter.** Usually applies to early learners and describes a student who can gather and clearly communicate facts.
- **Interpreter.** Learners can now interpret data, prioritize problems, and offer a differential diagnosis based on data collected.
- **Manager.** In this stage, the learner is able to develop management plans for the patient. He/she functions as their doctor and is able to explain these plans to patients and their families.
- **Educator.** In addition to being able to educate colleagues and students, learners in this stage continue to strive to practice evidence-based medicine. They seek answers to questions that cannot always be found in a textbook.

The RIME framework has gained popularity in its ability to allow evaluators to come to the same conclusion regarding a student's clinical capabilities. As mentioned earlier, it can also be used to help set goals and expectations for students in clinic.

## **Observation**

Stemming from LCME standard ED-27, programs now require students to be directly observed in patient interactions as part of their evaluation. Preceptors may be asked to complete a mini-CEX or other observation form. Again it is helpful to have the form at the beginning, so it can be determined who will complete the observation and when. Other considerations include: Is the observation formative or summative? Do specific skills need to be observed, for example, physical exam or patient education? Time allotted to observe and complete the form is also an excellent time to give the student specific feedback on their performance.

## **Final Tips on Evaluation**

- Obtain as much information as possible about the components of evaluation for which you, your faculty, and house staff will be responsible.
- If present, use anchoring statements on evaluation to guide you more than numbers.
- If you cannot adequately assess an item on the evaluation, it is okay to mark "cannot assess" or its equivalent. For example, if you have never observed a student doing a physical exam, you probably cannot evaluate this item.
- Remember evaluations are a summary of what you have observed. There are other components, and the student's final grade will not be solely determined by you.
- Feedback and evaluation are often partners. When discussed, evaluations can serve as a tool to give specific feedback to residents.

## Residents as Teachers

Residents are responsible for teaching medical students in the clinical setting, and their teaching may be responsible for up to one third of acquired medical knowledge [21]. Residents have been found to spend 20% of their time in direct teaching [22]. When provided with a curriculum aimed at improving teaching skills, residents are found to be more enthusiastic about teaching, report improvement in teaching skills, and increased satisfaction [23]. Many residency training programs now include a formal teaching curriculum for residents, with varying topics, on instructional and evaluation methods [22]. These may include resident or intern orientations, electives, optional seminars, educator pathways, or other areas. A brief description of some previously described curriculum follows:

*One-Minute Preceptor:* A recent review suggests that the One-Minute Preceptor model may be the most effective teaching strategy; however, more research is needed to determine optimal teaching strategies, assessments, and measurement of outcomes [22]. This teaching strategy, described previously, may be used to teach students and as a model for designing residents-as-teachers curriculum. The time commitment required is relatively short, and existing curricula are well described.

*AAIM residents-as-teachers online curriculum:* This topic is of national interest, and CDIM and APDIM created the joint Residents-as-Teachers Task Force to provide program directors and clerkship directors with practical and efficient strategies to help residents become more effective teachers in the course of their normal work duties [24]. This is available for all AAIM members and includes ten multimedia, evidence-based modules with topics ranging from oral presentations to clinical reasoning and professionalism. These tools may help you design your own curriculum and provide an excellent basis for a teaching program.

*Workshops and longitudinal curricula:* Many different resident-as-teachers curricula have been described in the literature, and their efficacy has been variously assessed [25]. Workshops range from just over an hour to more than 1 day, can occur singularly or longitudinally, and may be mandatory or voluntary based on scheduling. They do seem to be most successful for upper-level residents as opposed to interns. Teaching methods include seminars, PowerPoints, role-playing, reflections, observation and feedback, and electronic content delivery of key themes. Assessment of various teaching curricula does not support one method of delivery, leading experts to recommend ongoing research and developing programs which adapt to the individual needs of your institution.

Collaboration between clerkship directors and clinical leaders could result in improved teaching skills of residents and improved experiences for students in clinic. Similar curricula could be developed for residents in clinic teaching students, with a focus on ambulatory topics and primary care settings. Teaching curricula could parallel faculty development, with a focus on course objectives, feedback strategies, rules of documentation, and effective evaluations. Since residents are also learners, it is a crucial role of the clinic leadership and precepting faculty to provide feedback to them on their teaching skills, even if a formal curriculum does not exist.

## Faculty Benefits

Many physicians teach for the joy of teaching—they enjoy imparting their clinical knowledge, perspective, and love of what they do to others. However, academic physicians often have to balance the missions of clinical services, research, and teaching. Although participation in teaching of residents and medical students is often an expectation, compensation does not always reflect this. Compensation for physicians in the ambulatory setting is often based on clinical productivity (RVUs) or total number of visits [1]. Thus, how does one incentivize teaching and make it a realistic option for those who want to do it.

*Monetary/time compensation.* Education value units (EVU) have been described and implemented in various institutions as a way to compensate teaching [26–28]. This system acknowledges that teaching takes time and clinical productivity will not be as high. Some institutions may also offer a monetary stipend to clinical preceptors. Georgia offers tax incentives for practitioners to take students if they are not compensated in any other way [29]. If your institution has a method for compensating teaching, ask if precepting students will be considered in the calculation. As a medical director, you will need to consider if having students changes clinical duties for your faculty (i.e., number of patients they are to see, how many residents they are covering, etc.).

*Consideration for promotion.* More and more programs have well-developed clinician-educator pathways for promotion. Promotion along this pathway usually requires evidence of breadth, quantity, and quality of teaching. Evaluations from students can be part of the evidence of quality and can be added to teaching portfolios. Teaching students in addition to residents may increase breadth as well.

*Eligibility for teaching awards.* Institutions and professional societies have developed teaching awards. Receiving a teaching award can be through nomination or by application. In addition to recognition, receiving an award may lead to opportunities to apply for grants, support applications for promotion, as well as give faculty institution-wide recognition for their work.

*Other options/benefits.* If your clinic has volunteer faculty, some of the options above (desire for promotion) may not be an incentive. Having a school offer access to CME activities, faculty development retreats, and the medical library might be preferable options. Acknowledgment by plaque or certificate signed by department chair of medicine and/or medical school dean may also be valuable as a thank you even when monetary compensation is not available.

## Troubleshooting and Common Problems

This section addresses common scenarios when working with students in the ambulatory setting. Each begins with a brief vignette followed by suggestions many of which are explained in detail in other parts of the chapter as well.

### ***“Too Slow”***

You enjoy having Mary, a third-year clerkship student, in your clinic. However, some of your patients have started to complain about having longer waits. Also, your morning clinic is going deep into your lunch hour. You want to continue teaching and you want Mary to have a good experience, but you are becoming exhausted. How can you balance teaching with effective/efficient patient care?

- Use wave scheduling to stagger your patients and/or have multiple rooms available. This allows you to see one or two patients while the student is performing their H&P.
- If possible, preselect patients for the student to see. This allows you to prepare the patient for a longer visit with the student and you. It may also allow the student to read about the patient in advance.
- “Prime” the student. Setting clear expectations of what you would like the student to do in the clinical encounter will help make the visit more efficient.
- Don’t try to teach everything for every patient. Pick one or two teaching points on which to focus.
- Be familiar with various forms of time-effective methods of teaching including having the student present in the room, SNAPPS, and One-Minute Preceptor.

### ***“More than Shadowing”***

You have had students in your clinic over the past year. You are receiving feedback from the clerkship director regarding your evaluations. While students feel you are very knowledgeable and compassionate toward your patients, many of them complain about “doing nothing” in your clinic but shadowing. They would like to be more involved in the patient’s care. You have a very busy clinic and limited amount of space but are open to the idea of giving the students more independence, but how?

- Even if only one room is available, have the student take a more active role. The student can perform as a scribe, lead the history or physical, place/pend orders, check vital signs, provide patient education, communicate with team members, and/or provide patient instructions.
- Allow time for student to derive own assessment and plan. You may perform other tasks (i.e., documentation) at this time.
- Try wave scheduling if not already implementing.

### ***“Read More”***

Shelly, your student from 2 months ago, comes to you upset. She received a “pass” from the rotation and is confused. During the rotation you constantly told her that she was doing a good job and that she should just “read more.” She would like more concrete information about what she could’ve done to receive a better grade.

First, students should direct concerns about their grades to the clerkship director unless instructed to do otherwise. In this case, it would be appropriate to ask the student to contact the clerkship director. Reflecting back on what could have been done better to make the student more aware of her performance:

- Go over evaluation with the student at the end of the rotation.
- Set objectives at the beginning. Then review the objectives periodically and discuss the progress the student is making.
- Give feedback in real time. After a presentation, exam, let the student know “I want to give you feedback regarding....”

## Conclusion

The majority of physicians will spend at least part of their career in the ambulatory setting. In order to prepare them for future practice, the time students spend in the ambulatory setting likewise has continued to grow. Meeting the needs of students and allowing faculty to still meet their clinical and educational goals is possible. Preparing faculty with course objectives and learning goals will help direct teaching. Newer scheduling does offer opportunities for increased continuity. Finally, various teaching models exist which can help preceptors manage time wisely while simultaneously providing students with increasing autonomy and learning experiences.

Teaching students in clinic is rewarding and can have many benefits. However, increasing pressure on primary care faculty to achieve clinical productivity goals can sometimes conflict with faculty desire for protected time for teaching students. Engaging hospital administration and academic leadership to provide support for teaching faculty will be essential in maintaining these models. Similarly, supporting faculty and resident time for education on course objectives and milestones will also be important. If we continue to work together to align goals of learners with those of hospital institutions and patient care, we can strive to build teaching models that will optimize these roles.

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**Part V**  
**Quality Improvement**

# Chapter 18

## Quality Improvement Projects and Indicators



Emily Fondahn

### Introduction

A gap currently exists between the care provided to patients and the care recommended for patients. Quality improvement (QI) methodology strives to close this gap. Additionally, many quality metrics are now being monitored by different groups, such as Centers for Medicare & Medicaid Services and insurance companies. Residents need to be knowledgeable of quality improvement metrics and methodologies and should be engaged in quality improvement projects within an academic medical practice.

### Learning Objectives

1. Describe types of quality indicators and patient satisfaction tools used in primary care.
2. Identify how to engage residents in quality improvement.
3. Name components of the Clinical Learning Environment Review (CLER) program.

### Outline

- Quality Improvement Background
  - *Crossing the Quality Chasm aims for healthcare*
  - Triple Aim framework

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- Primary Care Quality Indicators
  - Measurement in Quality Improvement
  - Structure/Process/Outcome/Balancing Measures
  - Implementation of Quality Indicators
  - Medicare Access and CHIP Reauthorization Act (MACRA) and Merit-Based Incentive Payment System (MIPS)
- Patient Engagement
- Engaging Residents in Quality Improvement
  - Resident Clinic QI Projects
  - Clinical Learning Environment Review (CLER)

## Quality Improvement Background

In 2001, the Institute of Medicine (IOM) published a groundbreaking report, *Crossing the Quality Chasm*, which stated that the US healthcare delivery system does not provide consistent, high-quality medical care to all people [1]. Patients do not always receive the necessary components of care, yet often receive care that is unnecessary. The IOM proposed six aims for healthcare:

1. **Safe:** avoiding injuries to patients from the care that is intended to help them. Examples include preventing healthcare-associated infections or making medication errors.
2. **Effective:** providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit. Examples include screening patients with diabetes for retinopathy or not performing PSA screening on men with a limited life expectancy.
3. **Patient-centered:** providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions. Examples include discussing benefits and risks of anticoagulation medications for a patient with atrial fibrillation or discussing goals of care for terminally ill patients.
4. **Timely:** reducing waits and sometimes harmful delays for those who receive and those who give care. Examples include reducing the time for patients to establish care with a primary care physician (PCP) or being able to see PCP quickly for urgent conditions.
5. **Efficient:** avoiding waste, including waste of equipment, supplies, ideas, human potential, and energy. Examples of efficient care include having patients go to a PCP rather than the emergency room for care of chronic medical conditions or streamlining forms to reduce paperwork.

6. **Equitable:** providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status. Examples include eliminating racial disparities for cancer screening or reducing variance in care based on geography.

Since the publishing of *Crossing the Quality Chasm*, improvements have been made within the US healthcare system; yet significant gaps still remain. For example, the percentage of women ages 50–74 who reported they had a mammogram within the past 2 years has decreased overall from 77.2% in 2000 to 72.4% in 2010 [2]. Despite spending more on healthcare than other countries, the United States has worse health outcomes than international peers and has higher rates of chronic disease [3]. Nearly half of Americans have at least one chronic healthcare condition, and 86% of all healthcare spending was for people with one or more chronic condition [4, 5].

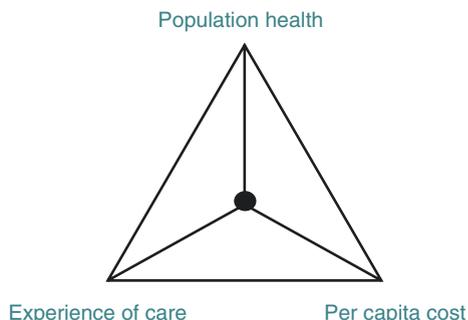
In 2007, the Institute for Healthcare Improvement (IHI) developed the Triple Aim framework which refers to the simultaneous pursuit of three goals (Fig. 1) [6]. The Triple Aim is composed of three components necessary to optimize a health system performance:

1. Improving the patient experience of care, including quality of care, access, and reliability
2. Improving the health of the population
3. Reducing the per capita cost of healthcare

This framework allows health systems to focus on projects that address all three components of the Triple Aim, such as coordination of care to prevent readmissions or reducing unnecessary testing for patients [7]. Additionally, healthcare systems need to change healthcare delivery from episodic fragmented care for individuals to optimizing health both at the individual and population level.

Primary care has been an area of focus within healthcare redesign, given that the primary care physician's (PCP's) office is often the first point of contact for patients in the healthcare system. For individual practices, understanding the concepts and

Fig. 1 The IHI Triple Aim



components of quality improvement is important in order to improve efficiency, optimize clinical outcomes, and reduce costs. Physicians and practices must start focusing on the overall health of the population of patients they serve, in addition to the patient sitting in the exam room [8].

A recent review article discussed the essential elements of primary care in the context of providing high-quality care [9]:

1. *Accessible first-contact care*: services available and easily accessible to patients with new medical needs or ongoing health concerns, including shorter waiting times for urgent needs, enhanced in-person hours, around-the-clock telephone or electronic access to a member of the care team who has access to the patient's medical record, and alternative methods of communication including patient portals.
2. *Continuous care*: primary care clinicians have a personal and uninterrupted caring relationship with their patients, with continuous exchange of relevant information about healthcare and health needs.
3. *Comprehensiveness of care*: primary care clinicians, working with the interprofessional primary care team, meet the large majority of each patient's physical and mental healthcare needs, including prevention and wellness, acute care, chronic and comorbid care, and discussing end-of-life care.
4. *Coordinated care*: care is coordinated across all elements of the broader healthcare system, including specialty care, hospitals, home healthcare, and community services and support.
5. *Accountable whole-person care*: primary care clinician/team is knowledgeable about and oriented toward the whole person, understanding and respecting each patient's unique needs, culture, values, and preferences in the context of their family and community.

## Primary Care Quality Indicators

Measurement is key to knowing if a change has led to an improvement. Healthcare measurement is founded on Donabedian's framework using structure, process, and outcome measures (Table 1) [10]. Balancing measures assess if any part of the system is being harmed due to other changes. Metrics can be obtained through multiple sources such as claims data, patient surveys, clinician surveys, practice surveys, electronic health record (EHR) reports, or chart audits. Practices are facing increased pressure to provide quality metrics for the insurance companies, the government, and the public. Collecting and analyzing these metrics can place a large administrative burden on practices.

**Table 1** Types of measurements to assess quality

Types	General description	Healthcare description	Clinical example
Structure measures	Quantify available resources	Quantify available resources of providers and healthcare systems	Number of diabetes educators in a primary care clinic
Process measures	Quantify the process steps necessary to achieve the desired outcome	Quantify the diagnostic and therapeutic processes used in caring for patients	Number of diabetic patients with a HbA1c checked every 3 months
Outcome measures	Quantify the degree to which consumer specifications are met	Quantify the health status of patients	Number of diabetic patients with a HbA1c less than 7
Balancing measures	Quantify if changes to one process worsens other processes	Changes in baseline health characteristics aside from the primary outcome	Number of diabetic patients who develop hypoglycemia

Adapted from the Institute of Healthcare Improvement, Science of Improvement: Establishing Measures. <http://www.ihl.org/resources/Pages/HowtoImprove/ScienceofImprovementEstablishingMeasures.aspx>

### *Implementation of Quality Indicators*

Adopting and implementing quality indicators can be a struggle. Physicians are committed to providing high-quality care to patients but can easily feel overwhelmed with the requirements to meet quality metrics and may perceive a loss of autonomy [8, 11]. Quality indicator characteristics that facilitate adoption of metrics include having well-recognized and clear definitions, being evidence based, covering important areas, reflecting current knowledge based on reliable and complete data, and representing an “open” rather than “hidden” agenda [12]. Barriers for implementation include a lack of precision of the measure; viewing indicators as a threat to autonomy, as not credible, and as a tool to penalize bad performance; or having financial penalties based on performance areas beyond the scope of professional control. Challenges that physicians may perceive with interpreting and believing the quality data include when the data is not timely, such as being 6 or 12 months old, if there is no accurate physician attribution for the data or there is no adjustment for confounding patient factors such as comorbid conditions or sociodemographic characteristics [8]. Financial incentives or penalties are one approach used by healthcare organizations to improve quality. A Cochrane Review found that there is insufficient evidence to support or not support the use of financial incentives to improve quality of primary healthcare [13]. Most of the studies about financial incentives tend to focus on one aspect of care, such as diabetes, which may lead to the PCP being able to spend less time on other important aspects of care.

## ***MACRA and MIPS***

The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) is a Quality Payment Program developed by CMS for Medicare providers which repeals the Sustainable Growth Rate (SGR). Ideally, these quality payment programs lead to better patient outcomes, decrease provider burnout, align incentives across health-care stakeholders through the Alternative Payment Models (APMs), and continue to advance healthcare delivery system reform [14].

There are two tracks available for providers through the Quality Payment Program:

- Advanced Alternative Payment Models (APMs)
- Merit-based Incentive Payment System (MIPS)

MIPS is composed of four categories with each being responsible for a different percentage of the total score (Table 2) and combines existing CMS quality programs into one comprehensive program [15]. The goal of MIPS is to move away from fee-for-service toward paying for value and better care. The current criteria for inclusion are providers (physicians, physician assistants, nurse practitioners, clinical nurse specialists, and certified registered nurse anesthetists) who bill Medicare more than \$30,000 per year or provide care for at least 100 Medicare patients. Providers may see positive, neutral, or negative adjustments in their payments. The 2017 data will be used to determine the 2019 payments. In order to succeed, data for these quality metrics needs to be documented in a way that is captured through the EHR. The data can either be reported as an individual under a single National Provider Identifier (NPI) tied to a single Tax Identification Number or as a group who shares a common Tax Identifier Number, regardless of the specialty or practice site.

APMs are a payment approach that gives added incentive payments to provide high-quality and cost-efficient care. APMs often apply to a specific clinical condition, care episode, or population. Advanced APMs are a subset of APMs that allow practices to earn more rewards in exchange for taking on risk related to patient outcomes. Participation in advanced APMs allows physicians to earn a 5% incentive payment each year and avoid MIPS reporting requirements and payment adjustments. Examples of advanced APMs include comprehensive end-stage renal disease care (ESRD), Comprehensive Primary Care Plus, and Comprehensive Care for Joint Replacement Payment Model.

## ***HEDIS Measures***

The Healthcare Effectiveness Data and Information Set (HEDIS) is a set of health-care performance metrics used in the United States by many health plans to measure performance [16]. HEDIS allows for comparison of health plans and to benchmark plan performance. The HEDIS data can be used by employers, consultants, and consumers to select the best health plan for their needs.

**Table 2** Components of MIPS

Category	Previous quality program	Components	2017 category weight
Quality	Replaces Physician Quality Reporting System (PQRS)	Most participants: report up to six quality measures	60%
		Groups using web interface: report 15 quality measures for a full year	
		Groups in APMs qualifying for special scoring: report quality measures through APM	
Improvement activities	New category	Most participants: attest completion of four improvement activities	15%
		Groups with fewer than 15 participants or in a rural/health professional shortage area: attest completion of two activities	
		Participants in certified patient-centered medical homes, comparable specialty practices or APM designated as a medical home model: automatically earn full credit	
		Groups in APMs qualifying for special scoring: receive points based on requirements of participating in APM	
		For all current APMs under the APM scoring standard, this assigned score will be full credit. For all future APMs under the APM scoring standard, the assigned score will be at least half credit	
		Participants in other APM: automatically receive half credit and may report additional activities to increase score	
Advancing care information	Meaningful use	Fulfill required measures for a minimum of 90 days: conduct a security risk analysis for protected health information, transmit prescriptions electronically (e-prescribing), provide patient access to electronic health information, electronically create and send summary of care	25%
		Choose to submit up to nine measures for a minimum of 90 days for additional credit	
Cost	Value-based modifier	No data submission required	Counted starting in 2018
		Calculated from adjudicated claims	

Adapted from: Center for Medicare and Medicaid Services Quality Payment Program Fact Sheet, [https://qpp.cms.gov/docs/Quality\\_Payment\\_Program\\_Overview\\_Fact\\_Sheet.pdf](https://qpp.cms.gov/docs/Quality_Payment_Program_Overview_Fact_Sheet.pdf), accessed 4/25/17

The measures are grouped into the following areas [17]:

- Effectiveness of Care
  - Examples include adult BMI assessment, breast cancer screening, care for older adults, comprehensive diabetes care, and use of imaging studies for low back pain.
- Access/Availability of Care
  - Examples include initiation and engagement of alcohol and other drug dependence treatment and call answer timeliness.
- Experience of Care
  - Examples include CAHPS survey.
- Utilization and Risk-Adjusted Utilization
  - Examples include all-cause readmissions, emergency department utilization, and hospitalization for potentially preventable complications.
- Relative Resource Use
  - Examples include relative resource use for people with diabetes or COPD.
- Health Plan Descriptive Information
  - Examples include board certification and total membership.
- Measures Collected Using Electronic Clinical Data Systems
  - Examples include utilization of the PHQ-9 to monitor depression symptoms for adolescents and adults.

## Patient Experience

Patient satisfaction and experience with the healthcare system is becoming increasingly recognized. Scores on patient surveys can affect quality scores and reimbursement. Additionally, patients are able to post positive or negative experiences on social media or consumer websites, like Yelp or Facebook.

The Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CG-CAHPS) surveys are designed to collect data from patients regarding their experiences with primary or specialty care [18]. The patients are asked questions about their healthcare provider and the office staff over the last 6 months. Surveys are completed through a third-party vendor and designed to provide a standardized measure of patient experience that can be used between practices.

The adult version contains items in the following core areas:

1. Getting timely appointments, care, and information
2. How well providers communicate with patients
3. Providers' use of information to coordinate patient care
4. Helpful, courteous, and respectful office staff
5. Patients' rating of the provider

The response options are a four-point scale of “never, sometimes, usually, and always,” a “yes/no” scale, and a “0–10” scale to rate the provider based upon the question. The CG-CAHPS have adult and child versions, along with versions designed for Primary Care Medical Homes (PCMHs) and Accountable Care Organizations (ACOs). Supplemental items can be added to address specific areas of interest, such as health promotion and education.

## Engaging Residents in Quality Improvement

In 2003, the Accreditation Council for Graduate Medical Education (ACGME) added systems-based practice (SBP) and practice-based learning and improvement (PBLI) as part of the six major competencies in medical training [19]. Residents should be engaging in quality improvement (QI) projects and reviewing data related to their patient panel. Residency programs have implemented multiple different models in order to fulfill this requirement (Table 3):

1. Longitudinal quality improvement curriculum—resident(s) are paired with a faculty member to develop and implement a QI project over the course of 1–3 years. The curriculum is paired with didactic learning in QI [20].
2. Shared small group quality improvement projects—multiple residents work together on a project. The work may be handed off between residents based on their residency year and rotations.
3. Single project shared by a residency program—the entire residency program focuses on improving one or two areas, such as the diabetic foot exam. Each resident may be responsible for collecting and analyzing their own data through chart audits [21].
4. Individual chart audits—individual residents can complete performance improvement modules (PIMs) or similar chart audits to learn where they have gaps in their practice and opportunities for improvement. Some programs are able to create dashboards to display quality metrics for a resident's patient panel.

Many clinic quality improvement projects tend to focus on chronic care conditions, such as diabetes mellitus, congestive heart failure, coronary artery disease, or specific time periods, such as transitions of care either between inpatient and outpa-

**Table 3** Ambulatory QI models

	Faculty requirements	Resident participation	Sustainability
Longitudinal	Need multiple faculty to supervise a number of projects	Variable; if working in small group, one person may have unfair burden	May not be sustainable after resident(s) leaves; may have multiple different competing projects
Shared small group	Need multiple faculty to supervise a number of projects	Variable; work may not be distributed evenly	May not be sustainable after resident(s) leaves; may have multiple different competing projects
Single shared project	Less faculty to supervise projects, but need someone to coordinate and collect data	All resident engaged, although may not be as rich of a learning experience as designing and implementing a project	More sustainable over time
Individual performance audit	Less faculty to supervise projects, but need someone to coordinate and collect data	All residents engaged, although may not be as rich of a learning experience as designing and implementing a project	May not have large impact on clinical site for overall patient population; may lead to improvements in individual performance

tient or between providers. Challenges to quality improvement work include faculty time, training or funding, multiple competing educational and clinical demands, voluntary participation by a subset of residents, and limitations from the electronic health record in terms of aggregating data and providing performance reports [22]. At our program, Barnes-Jewish Hospital/Washington University School of Medicine, our residents focus on improving diabetes care. Residents receive individualized and clinic metrics for the quality of care for their patients with diabetes pulled from the EHR. Residents then have to complete a chart audit to determine the percent of patients who have a documented diabetic foot exam. This approach has allowed the clinic to focus on one chronic condition and minimized the administrative burden for faculty and staff to distribute and collect data for a large residency program.

### ***Clinical Learning Environment Review (CLER)***

In 2012, the ACGME created CLER to explore and understand the clinical learning environment in which trainees learn and practice [23]. The CLER site visit program is part of the Next Accreditation System and distinct from nearly all accreditation activities [24]. Each sponsoring institution is required to undergo a CLER visit about every 18–24 months. The Chief Executive Officer and the Designated Institutional Official (DIO) for the clinical site are required to participate in the visit. The CLER site visits aim to improve how clinical sites engage physician

trainees in learning to provide safe and high-quality patient care [24]. The CLER program addresses the six following areas:

1. Patient safety
2. Healthcare quality
3. Care transitions
4. Supervision
5. Duty hours/fatigue management and mitigation
6. Professionalism

Notably, the healthcare quality area focuses on pathways related to education on QI, resident engagement in QI activities, residents receiving data on quality metrics, resident's engagement in planning for QI, and resident education/engagement to address healthcare disparities.

Initial findings from the CLER visits demonstrated that clinical learning environments vary in [23]:

- The approach and the capacity for addressing patient safety and health quality and the degree to which they engage residents and fellows in these areas.
- Their approach to implementing Graduate Medical Education (GME). In many clinical learning environments, GME is largely developed and implemented independently of the organization's other areas of strategic planning and focus.
- The extent to which they invest in continually educating, training, and integrating faculty members and program directors in the areas of healthcare quality, patient safety, and other systems-based initiatives.
- The degree to which they coordinate and implement educational resources across the healthcare professions.

The CLER program provides a framework for academic medical practices to assess their learning environment and coordinate activities with the GME department. As the CLER findings mention, there is often lack of coordination of PSQI activities across the institution. For example, resident QI projects may not align with the clinical practice site's overall goals. Additionally, different residency programs within one institution may have different PSQI goals, objectives, and curricula for trainees, when there may be potential to collaborate and standardize. The CLER visits and recommendations can provide leverage for academic medical practices to develop PSQI programs that involve the trainees.

## Conclusion

Ambulatory practices must engage in quality improvement initiatives to optimize care of their patients, maximize reimbursement, and comply with best practices. Both seasoned physicians and trainees will need support in understanding quality improvement methodologies and indicators, participating in quality improvement initiatives, and complying with metrics. At a minimum, practices should provide

training for staff, identify key areas of improvement and barriers, develop quality goals that are reviewed regularly, develop and monitor quality metrics, and engage patients in quality improvement activities [25]. Using quality improvement methodologies, physicians and practices have the opportunity to enhance the health of patient populations.

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# Chapter 19

## Practice Improvement Modules



Craig Noronha

### Introduction

There has been an increasing focus on quality improvement within the field of medicine. Quality improvement (QI) aims to change aspects of the health-care system to improve its efficiency and outcomes [1, 2]. All levels of health care from the individual provider to entire health systems are devoting more resources toward quality improvement. The increasing focus on quality improvement is being driven by several factors including increased identification of system errors, development of QI curriculum for trainees, and exterior factors such as payment linkages to quality improvement [3–5]. Practitioners play an integral role in quality improvement measures within the academic clinical practice [6]. Providers have a unique position within the quality improvement structure in a clinic given the intersection of their medical knowledge and understanding of medical guidelines with the insight provided by being primary caregivers. This allows them to quickly identify system errors and areas for improvement that may not be readily apparent to other health-care workers. Providers also serve as clinic directors or other important roles within the clinic that lead them to be de facto leaders in quality improvement within the clinic. Frequently cited challenges to implementing a quality improvement project include faculty time, training, funding, and multiple competing educational and clinical demands [1–3].

Until recently, the American Board of Internal Medicine (ABIM) required that physicians demonstrate involvement in a clinical quality improvement project [4, 5]. The American Board of Internal Medicine had developed several web-based tools called practice improvement modules designed to facilitate physician involvement in quality improvement. The original practice improvement module consisted of a

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self-directed medical record audit, practice system survey, and patient survey. It is unclear at the time of this publication when or if this requirement will be reinstated. Although it is unclear if the ABIM will require providers to complete practice improvement modules in the future, the underlying concept of individual and clinic level quality improvement is an integral component of health care. The Accreditation Council for Graduate Medical Education (ACGME) has also identified the need for residents to be trained in quality improvement and practice-based learning as tools and skills for their future clinical practice. The ACGME requires that internal medicine residents receive practice data at least semiannually and residents are expected to develop a practice-based plan for improvement based on these data sets [6].

While there is no specific requirement for inpatient versus outpatient data, the ideal source for this information resides within the resident's continuity clinic panel. Several studies have validated the use of practice improvement modules to improve quality improvement skills, knowledge, and attitude in residents [7–9].

Despite an increase in interest in quality improvement, many providers have limited training and experience in data assessments and quality improvement. The practice improvement module provides a structure to teach basic quality improvement principles and develop real-world quality improvement experience. Practice improvement modules are designed to walk providers or groups of practitioners through a quality improvement project. Practice improvement modules utilize basic quality improvement principles and techniques allowing even the novice quality improvement participant to make impactful changes in their practice. Practice improvement modules can be utilized at both the individual provider and clinic level without intensive skills development. The data utilized in practice improvement modules should be easily accessible and ideally data that is already being collected by the individual provider and/or clinic. In most cases, practice improvement modules focus on specific clinic area or data points (e.g., the percentage of patients who are eligible for colorectal cancer screening and have had colorectal cancer screening within a specific period of time). Quality improvement is not only essential to improve patient care, but, as importantly, to allow providers to improve the processes related to patient care delivery.

## Learning Objectives

1. Identify the elements of a practice improvement module.
2. Describe an appropriate scope for a practice improvement module.
3. Identify possible participants in a practice improvement module.
4. Define the timing interval for a practice improvement module.
5. Recognize resident-specific factors in practice improvement design.
6. Define the three major components in the implementation of a practice improvement module.

## Outline

- Practice Improvement Module Design
  - Scope of Project
  - Participants
  - Timing
  - Resident Practice Improvement Module Monitoring
  - Implementation
    - AIM
    - What Change Can We Make That Will Result in an Improvement?
    - Measures: How Will We Know That a Change Is an Improvement?

## Practice Improvement Module Design

### *Scope of Project*

The first step in designing a practice improvement module is to identify the scope of the project. As discussed earlier, the original practice improvement module consisted of self-directed medical record audits, practice system surveys, and patient surveys. A practice improvement module can be designed to include any of these elements. Considerations should be given toward who is involved, time interval, data availability, and culture among other factors. A practice improvement module should ideally be constructed so that it can be completed without a large investment of resources such as staff time, major IT improvements, or large clinic redesigns. Practice improvement modules inherently are designed to work on small-level quality improvement projects for providers who have limited quality improvement experience and time. Larger quality improvement projects for clinics can utilize a practice improvement module as a basis to expand from and are discussed in the quality improvement chapter “Quality Improvement Projects and Indicators” in this manual. It should also be noted that the original concept of a practice improvement module was to create a module that could be utilized by all types of clinical practice from the individual provider to multi-provider academic practices. Although the original practice improvement module created by the American Board of Internal Medicine consisted of self-directed medical record audits, practice system surveys, and patient surveys, it is not necessary to include all three elements when creating a practice improvement module. Interventions should be easily implemented by the individual provider or at least have a direct input from each individual involved in the practice improvement module [10].

## *Participants*

When planning a practice improvement module, it is important to identify who is participating. This may include attending physicians, non-physician providers, residents, medical assistants, nurses, and pharmacists to name a few groups. The directors for each practice improvement module should be clearly identified early in the planning process. Depending on the size of the practice improvement module, there may be several directors including representatives from different disciplines. With an expansion of the practice improvement module to include multiple members of the health-care team, factors such as medical knowledge level, quality improvement experience, and shift rotations must be included into the planning.

For resident-specific practice improvement modules, it is crucial to have preceptor involvement and buy-in. Similar to residents, preceptors may have varying levels of experience, skills, and interest in quality improvement. Ideally, preceptors will be trained in the basics of quality improvement and the steps of a practice improvement module. However, the practice improvement module should be designed to accommodate all levels of participants. Even without increased training, preceptors can act as local system experts and can incorporate their clinical experience into the practice improvement module development. Consideration should be given to how to introduce the practice improvement module to preceptors. Due to the complexities of resident schedules, it is essential to plan out how the content will be presented to preceptors and residents including the mediums used to convey the information. Depending on the continuity clinic schedule, the content may need to be delivered several times on different days and potentially multiple times in 1 day. Electronic-based trainings via email or online videos are options for delivering educational content. Consideration should be given for when preceptors and residents will review the educational information. Using predefined meetings such as preclinical conferences or faculty administrative meetings may be venues to review educational content.

## *Timing*

Careful consideration should be given to the implementation schedule for the practice improvement module. This includes planning dissemination of background content information, provider planning period, implementation period, and a time period to analyze the effects of the practice improvement module. Clinic leadership should be involved in the practice improvement module planning process as they may be aware of clinic changes or other major projects that may coincide with the time period of the practice improvement module. Since a practice improvement module looks at the overall practice performance, ideally it should take place over a several month period in order to capture any changes in overall practice patterns. Due to providers having busy clinical and nonclinical schedules and extensive

workloads, all components of the practice improvement module from the initial introduction material to the end analysis should be created with the intent to be easily incorporated into a provider's schedule. Also, in an academic practice, providers may have multiple nonclinical duties for which they are not physically present in the clinic. All attempts should be made to develop a practice improvement module that will accommodate the wide variety of clinical times and schedules seen in an academic practice.

For resident-based practice improvement modules, planning should focus on how to incorporate the practice improvement module into the residency continuity clinic schedule. In a traditional model where residents have 1 half day of afternoon clinic per week, there may be multiple continuous weeks when residents are in the clinic and then there could be relatively random weeks when clinic is canceled due to inpatient responsibilities. In contrast, in an X + Y model which the X represents non-ambulatory time and the Y represents dedicated portions of ambulatory time, residents may go several weeks between continuity clinics. The practice improvement module should be designed to accommodate the specific scheduling model used by the residency. Planning for the practice improvement module should also include management of potential issues such as times when senior residents are interviewing for fellowship or jobs. If there are group projects involving several residents, there should be a plan for how the practice improvement module is implemented when one or more residents are not physically in the clinic or are on non-ambulatory rotations.

### ***Resident Practice Improvement Module Monitoring***

Practice improvement modules are an important tool for introducing quality improvement to providers giving them real-world experience and knowledge in working on a quality improvement project and simultaneously improving the care for patients. However, practice improvement modules often require additional steps or levels of work in terms of data analysis and entry on top of the requirements for daily clinical care. When reviewing data for a practice improvement module, providers are ideally evaluating several weeks or months of data for multiple patients. This review is not typically done within the setting of an individual patient clinic visit or encounter. The directors of the practice improvement module must consider how to monitor the progress of each individual resident. Depending on the monitoring system, size of the residency program, and clinic size, this may require a large amount of resources. When possible, electronic monitoring should be utilized to reduce the reliance on paper gathering. Monitoring can also include evaluations which incorporate the ACGME milestones. The internal medicine residency program may have a strong interest in tracking the completion of the practice improvement module to assess each resident's progress. Patient health information should be stored securely. Many institutions have electronic database storage options that are considered secure for purposes of storing health information.

## Implementation

In most cases, the practice improvement module will use a traditional Plan-Do-Study-Act (PDSA) four-stage problem-solving model which is used for improving a process or carrying out change [11, 12]. See Fig. 1 for a diagram of the PDSA cycle.

The PDSA cycle is easily taught to all levels of health staff and is basic enough to be easily incorporated into any practice improvement process. Rapid PDSA cycling is a method in which each PDSA cycle triggered intervention is quickly followed by multiple sequential PDSA based interventions. If done properly with enough resources and planning, multiple small-level interventions can lead to major improvements in a short period of time. Without appropriate planning, a project is at risk for several obstacles such as being too large in scope, requiring heavy investment of resources, and bridging over large intervals of time. The ideal practice improvement module should be appropriately scaled to allow for a reasonable intervention with measurable significant outcomes over a relatively short period of time.



**Fig. 1** Plan-Do-Study-Act from the Institute for Healthcare Improvement <http://www.ihl.org/resources/pages/tools/plandostudyactworksheet.aspx>, <http://www.ihl.org/resources/Pages/HowtoImprove/default.aspx>

The time period chosen for the practice improvement module must allow for appropriate implementation and assessment while also avoiding potential loss of momentum that can occur with projects that span a large period of time.

Before starting a practice improvement module, three questions need to be answered by the practice improvement module directors:

1. What are we trying to accomplish or AIM statement?
2. What change can we make that will result in an improvement?
3. How will we know that a change is an improvement?

See Table 1 for a PDSA cycle worksheet created by the Institute for Healthcare Improvement that guides participants through the PDSA cycle.

**Table 1** The Institute for Healthcare Improvement PDSA worksheet for implementing a change <http://www.ihl.org/resources/pages/tools/plandostudyactworksheet.aspx>

### PDSA Worksheet for Testing Change

#### Aim: (overall goal you wish to achieve)

*Every goal will require multiple smaller tests of change*

Describe your first (or next) test of change:	Person responsible	When to be done	Where to be done

Plan

	Person responsible	When to be done	Where to be done
List the tasks needed to set up this test of change			
Predict what will happen when the test is carried out	Measures to determine if prediction succeeds		

Do

Describe what actually happened when you ran the test

Study

Describe the measured results and how they are compared to the predictions

Act

Describe what modifications to the plan will be made for the next cycle from what you learned

### **AIM: What Are We Trying to Accomplish?**

Every quality improvement project requires an aim to be identified at the beginning of the project. The aim should be time specific and measurable. Depending on the situation, it may also be refined to a specific patient population or setting.

In the 2001 Institute of Medicine report *Crossing the Quality Chasm: A New Health System for the twenty-first Century*, six central aims for health care were identified [13]:

- Safe: Avoid injuries to patients from the care that is intended to help them.
- Effective: Match care to science; avoid overuse of ineffective care and underuse of effective care.
- Patient-centered: Honor the individual and respect choice.
- Timely: Reduce waiting for both patients and those who give care.
- Efficient: Reduce waste.
- Equitable: Close racial and ethnic gaps in health status.

These aims can be utilized as starting themes to help identify a specific aim for a practice improvement module. As mentioned above, the aim should be time specific and measurable. Some examples of practice improvement module aim statements include:

- Reduce percent of new patient visits scheduled more than 2 weeks after the time of patient request by 50% by March 1.
- Improve medication reconciliation rates by 25% by July 1.
- Reduce time between patient requests for a refill to filling a prescription by 12 h by January 1.
- Increase rate of influenza vaccination for eligible patients from October 1 to March 1 by 25%.

### **What Change Can We Make That Will Result in an Improvement?**

Even with an appropriate aim and measure identification, a practice improvement module may introduce an intervention that does not lead to improvement. However, all improvements require some change that was either intentional or unintentional. Background medical knowledge, process knowledge, and historical information about a system allow practice improvement module planners to generate an intervention plan. Once an intervention is planned, a PDSA cycle can be utilized to test the intervention hypothesis. The results of the intervention are evaluated in the study portion of the PDSA leading to refinement and/or expansion of the intervention. Done sequentially, multiple PDSA cycles can be utilized to turn a small intervention into a larger clinic-based change process.

Within a clinic, the intervention can start within a small subunit such as an individual provider or one specific suite or section of the clinic or 1 half-day session. Depending on the results, the intervention can be expanded via rapid PDSA cycles from this pilot to include increasingly larger groups of providers or patients.

## Measures: How Will We Know That a Change Is an Improvement?

When creating a practice improvement module, it is vital that data points be identified which can be used to gauge the success of an intervention. Identifying an appropriate data point allows practice improvement module participants to identify if their change is making a difference. The data points should be easy to gather and should be easily tied to the intervention that is being made. In the era of electronic medical records, patient-level data is becoming increasingly easy to track and monitor. Other data points such as clinical flow time measurements are not universally built into the EMR and may require resources such as observers to track. It is also important to determine how individual providers will be getting these data points. For example, will they be doing individual chart audits? Will the clinic provide them with individual panel specific details? Or will clinic staff be collecting data about time points in a patient's flow through a clinic? As compared to clinical research, data points utilized for a practice improvement module do not have to be hard evidence-based measures. Clinical guidelines can help define goals for practice improvement modules. Medical centers and clinics may also be tracking data such as patient satisfaction that can be utilized for data gathering and goal setting.

Measures fall into three major subtypes: outcomes, process, and balance measures. Outcome measures focus on how the system affects patient care. Examples of outcome measures include average systolic blood pressure (SBP) for clinic patients over the age of 60 or numbers of hours to next available urgent care visit. Process measures focus on the actual processes within a clinic. Examples of process measures include number of clinic hours per week for each provider or percentage of cigarette-smoking patients identified as tobacco users. Finally, balance measures evaluate potential negative impacts of interventions on other parts of the system. For example, if a clinic implemented a process to reduce the waiting period for a new patient visit but inadvertently the process increased the waiting period for an appointment for established patients.

Data can be collected in several different ways based upon the aim of the project. The presentation of data can take many forms. The most commonly used method is to plot data over a time period which allows practice improvement module participants and leadership to visualize the impact of the intervention.

## Conclusion

As health-care shifts more focus to providing high-quality care, providers and clinics are transforming their goals to include quality measures [13]. Health-care providers are being asked to improve their patient care at the panel level. With the use of basic clinical data, practice improvement modules can be used as powerful yet simple tools to improve the quality of care at the individual provider and practice level. Practice improvement modules also provide a platform to teach the basic components of quality improvement to all levels of learners from trainees to

experienced clinicians. Using several rapid iterations of a Plan-Do-Study-Act model for change starting with a practice improvement module, providers and staff can rapidly improve the quality of care for providers. As we move forward into the twenty-first century of health care, it is imperative that trainees and providers become experienced with tools like practice improvement modules to improve the quality of their patient care [14, 15].

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# Chapter 20

## Patient Safety in an Academic Medical Practice



Emily Fondahn and Claire Horton

### Introduction

Patient safety research has largely focused on the inpatient setting, with less known about patient safety issues in the ambulatory setting. In ambulatory settings, there is typically one provider caring for a patient over a period of time, the volume of patients is higher, the patients are often responsible for their own care coordination, and there is a longer interval of time between the physician and patient contact to assess symptoms and judge effects of a treatment. Initiatives have been created to address some of these issues, such as development of primary care medical homes for care coordination and use of interdisciplinary teams to follow patients between physician visits, yet there is still a great deal of room for improvement. Outpatient care may be regarded as safer than inpatient care given that the majority of the patients are not as acutely or severely ill as inpatients, but outpatients still rely on their primary care physicians to correctly diagnose new health concerns and closely manage chronic diseases. However, the potential for harm is always present.

### Learning Objectives

1. Distinguish differences between inpatient and ambulatory patient safety errors.
2. Describe the types of errors that occur in ambulatory medicine.

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3. Define the role of risk management in patient safety events.
4. Delineate approaches to enhance patient safety and teach patient safety in an academic environment.

## Outline

- Patient Safety Background
- Common Errors In Ambulatory Medicine
  - Medication Errors
  - Diagnostic Errors
  - Communication Errors
  - Transitions of Care
  - Laboratory Errors
  - Administrative Errors
  - Clinical Knowledge Errors
  - Vulnerable Patients
- Risk Management
- Teaching Patient Safety

## Patient Safety Background

Overall, the frequency of errors in the outpatient setting is unknown given that error reporting in the ambulatory setting is very low. Only 4.1% of sentinel events reported to the Joint Commission occurred in the ambulatory setting [1]. This low number likely represents a lack of reporting of these events rather than a lack of events occurring. Barriers to reporting include a lack of knowledge about how and what to report, who is responsible for the report, fear of disciplinary action or litigation, and believing that reporting is time-consuming or will not be worth their time [2]. In the outpatient setting, practices may not have event reporting systems, and there is no standard taxonomy for classing incidents in primary care settings [3]. However, adverse event and near-miss reporting systems have been shown to be effective in creating quality improvement activities in primary care [4].

In academic medical practices, residents often act as the primary care provider for a cohort of patients. The resident assumes the responsibility of managing patients and being their link within the healthcare system. However, residents frequently have other clinical responsibilities, such as night float and the intensive care unit, which can distract them from their outpatient clinic responsibilities. Moreover, most residents only spend 1/3 of their time in the ambulatory setting, creating a significant disparity with their inpatient training and potentially contributing to a lower comfort level with ambulatory care settings. Even though residents may have longer clinic visits scheduled than faculty, the agenda for a clinic visit is packed: addressing patient concerns and medical problems, creating and updating a problem list,

reconciling medications, reviewing allergies, documenting a review of systems, completing a physical exam, presenting the case to the supervising physician, ordering tests, prescribing new medications, making referrals, coordinating testing logistics, allowing time for questions, and doing these all in a patient-centered manner [5]. Frequently, resident physicians may have less nursing support to complete all of their clinical responsibilities, and many residents may try to do all of the work on their own. Each of these factors allows the opportunity for a mistake to be made, especially by an inexperienced clinician.

## **Common Errors in Ambulatory Care**

The American Medical Association (AMA) defined the top six errors that occur in the ambulatory setting as: medication errors, diagnostic errors, communication errors, laboratory errors, administrative errors, and clinical knowledge errors [6]. Academic medical practices with resident-based clinics have specific patient safety challenges, such as end-of-year patient handoffs, attending supervision, use of the primary care exception (PCE) for supervision, result handling, patient supervision when the providers who know the patient are away from the clinic setting, and resident workload.

### ***Medication Errors***

Medication errors are defined as a “preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer” [7]. Medication errors are extremely common in the outpatient setting; an estimated 530,000 Medicare beneficiaries experience a medication-related error yearly [8]. Additionally, up to 25% of inpatient hospitalizations are related to adverse drug events [9]. Types of medication errors include medication reconciliation, patient adherence, medication monitoring, and medication prescribing. Residents are expected to be able to correctly write prescriptions upon matriculation into residency [10]. Given a lack of experience, trainees may be more likely to make mistakes prescribing, reconciling, and monitoring medications. For interns, each clinic session may represent their first time prescribing a medication that faculty use commonly such as warfarin, amoxicillin, and metformin. Due to their lack of experience, residents may not recognize the need for more careful follow-up for medications with a narrow therapeutic range or be aware of medication side effects that need to be relayed to patients. Additionally, errors can be made while writing the prescription, regardless if the prescription is handwritten or sent through an EMR. For example, a resident may mean to prescribe guaifenesin but could mistype into the EMR leading to guanfacine being prescribed. In a resident-based pediatric clinic, the prescribing error rate was 5.88% [11].

Traditionally, medical students and residents have received little or no training on medication reconciliation. Medication reconciliation is a systematic and compre-

hensive review of all the medications a patient is taking to ensure that medications being added, changed, or discontinued are carefully evaluated [12]. Medication reconciliation should occur at most clinic visits and especially at high-risk times, such as transitions of care for patients. A meta-analysis of medication reconciliation curriculum found only three formally integrated medication reconciliation programs; these programs incorporated aspects of didactic sessions, role-play exercises, and experimental learning [13]. Residents should receive training regarding medication reconciliation, especially surrounding transitions of care.

### ***Diagnostic Errors***

Diagnostic errors are defined as a delayed, missed, or incorrect diagnosis. A recent report from the Institute of Medicine reported that 5% of US adults who seek outpatient care each year experience a diagnostic error [14]. In a resident-based practice, faculty may be particularly vulnerable to committing a diagnostic error. For instance, the information received about a patient is filtered by the resident, who may omit pertinent information or frame the case leading to cognitive bias. A study of internal medicine residents found that 100% of residents reported a case of diagnostic error or delay in diagnosis due to cognitive bias [15]. The examples were of inpatient hospitalizations but can readily occur in the ambulatory setting. The most common cognitive bias was anchoring (87.8%) which is the tendency to lock onto salient features in a patient's presentation too early in the diagnostic process, followed by availability (75.6%) defined as judging things as being more likely if it comes readily to mind. Framing, which is how the patient's case is presented can influence the diagnosis and was identified in 56.1% of the cases, and blind obedience, showing undue deference to authority, was identified in 53.7% of cases [16].

The frequent handoffs as residents leave the program and new residents come in offer the chance for important information being lost within the chart. With the duration of internal medicine and pediatric training being 3 years, this means patients who are followed in a clinic with only resident providers will be assigned a new primary care provider minimally every 3 years. Residents may receive follow-up information about a patient, such as a low hemoglobin or incidental pulmonary nodule, but not contact the attending to discuss an appropriate treatment plan. Among ambulatory medical practices, 52% reported having a system to record tests ordered, while only 32% of practices had systems to detect if patients missed tests [17]. Residents may not have developed a system to track test results, especially independent of the EMR. New residents may not fully use all the capabilities of the electronic medical record to track results and follow patients.

### ***Communication Errors***

Poor communication at many levels is frequently cited as a contributing factor to patient safety. The poor communication can be between physicians, between physicians and other healthcare providers, or between the physician and patient. In the

ambulatory setting, communication lapses can occur at the end of the academic year when a patient is transitioned to a new intern provider, between inpatient and outpatient settings and with specialty providers.

Physician-to-physician communication is often done through referrals. The majority of primary care providers report being dissatisfied with the referral process [18]. Often, neither the primary care physician nor specialist feels like they are receiving all information from the other provider. For a resident, referral problems may be amplified. First, residents need to identify an appropriate clinical question for the referral and include supporting documentation for the consultation. Next, residents must learn the systems-based knowledge on how to send and follow up on a referral. With their limited training, residents are often unsure of how to distinguish urgent from routine referrals. Residents may feel less comfortable discussing cases with consultants given hierarchical issues in medicine. The discontinuity of resident clinics may lead to gaps in the referral process, specifically no one following up with a patient if a referral does not go through or no one following up on the recommendations from the consultant.

Lastly, resident clinics and academic hospital-based clinics often care for a disproportionate number of uninsured or underinsured patients. The lack of insurance will often be an additional barrier to getting specialty care.

Communication errors may also occur between the resident and the attending physician. Attending physicians are relying on the residents to accurately complete the patient evaluation and present that information. However, residents may not present all the pertinent information. Clinic flow may also hinder resident and attending physician communication. A patient may raise an issue with the resident after a case is presented to the attending, and the resident initiates a plan that is never reviewed with the attending. With the increase in block schedules, residents may have less continuity with their patients than previously [19]. This loss of continuity may lead to communication errors between the primary resident physicians and other resident team members.

### *Transitions of Care*

Increased focus has been given to transitions of care from the inpatient to outpatient setting. Given that resident clinics tend to care for more socially disadvantaged populations with higher disease burden and less social support, these resident clinics may struggle to provide the optimal care after hospitalization [20]. Patients followed by a resident primary care clinic were more likely to be readmitted to the hospital, and less likely to have follow-up appointments compared to patients followed by a faculty primary care clinic [21]. Programs have initiated quality improvement projects and educational initiatives to improve accuracy of medication reconciliation, discharge planning for patients, quality of the discharge summary, and communication between inpatient teams and primary care physicians [13, 22–24]. Post-discharge clinics are one option to bridge the patient between the inpatient setting and their primary care physician. These clinics can be housed within a resident primary care clinic and have shown a decrease in time to post-hospital

follow-up appointment and readmission rates [25]. Post-hospital visits should include reviewing the discharge summary, coordinating care with other consultants or home health, following up on pending test results, performing drug monitoring, doing a comprehensive medication reconciliation, discussing current symptoms with the patient and family, providing instructions for warning signs and how to seek after-hours care, and ensuring that all appropriate follow-up appointments are made [26]. However, the outpatient clinic is dependent on timely and accurate information from the inpatient team. Patients may present to clinic without a completed discharge summary or a discharge summary that lacks important elements from the hospitalization [27]. For example, a patient may arrive with an incomplete discharge summary that does not provide information about tests pending at discharge, consultant recommendations, and an accurate medication list. Given the complexity of post-hospital visits, clinic directors should consider if extra time is needed for these visits or if there is a structured template the residents should use.

End-of-year handoffs have received little attention compared to inpatient handoffs and inpatient-to-outpatient handoffs. However, an estimated 640,000 to 1.92 million patients have a change in their primary care when the residents graduate from their training program [28]. The incoming residents will not have the same level of expertise as the departing residents, and many programs have no standard way of supervising or requiring end-of-year handoffs. These patients are at risk of missing visits due to poor follow-up care and scheduling difficulties, resulting in missed test results and delayed medication refills [29, 30]. Clinics should also have a system to handle laboratory or radiology studies that are completed at the academic year transition. Reports could be sent to a graduated resident who is no longer in that healthcare system, leading to a delay in diagnosis and treatment for a patient.

### ***Laboratory Errors***

Primary care providers order lab tests on an estimated 29–38% of encounters, and these laboratory tests can contribute to between 15 and 54% of errors in primary care [31]. Types of errors include missed/delayed test results to the provider, patient follow-up of test results, patient notification about test result, and laboratory errors such as incorrectly labeling or processing a specimen. Results may be sent via paper or fax or electronically. In academic practices, variability exists for who receives the test results. Some electronic medical records (EMRs) are capable of sending test results to multiple providers, e.g., resident and supervising attending physician, while other EMRs can only send test results to the ordering provider.

Laboratory and other test results pose a significant challenge in residency clinics. Interpreting and managing test results is a skill that develops over time and can be challenging for trainees [32]. Clinics vary in regard to supervision of test results and when the attending needs to be notified. Results may return when residents are no longer in a clinic setting but have transitioned to an inpatient rotation. A resident may be paged with hyperkalemia on a basic metabolic panel (BMP), be unsure

about how to handle the result, but then become busy with inpatient tasks and forget to follow up with the patient, leading to the result not being addressed. Some clinics have designated a resident to follow up on test results to prevent results from “falling through the cracks.” Residents need supervision managing these test results.

### ***Administrative Errors***

Physicians often give little thought to all the steps needed in ordering a test and receiving the result. However, providers will recognize events like a misplaced laboratory result or the front desk forgetting to call a patient to schedule an appointment as scenarios that can lead to adverse events. Reducing administrative errors often focuses more on individual conscientiousness, which will lose effectiveness over time, rather than office-wide safety practices [33]. One study evaluating near misses in primary care found the most common types of errors were breakdowns in office processes such as filing, chart data entry errors, and problems with appointments or referrals [4].

### ***Clinical Knowledge Errors***

Residency training is often highly inpatient focused. Interns commonly start residency not feeling confident evaluating and managing common ambulatory topics and feel like they did not receive enough ambulatory training in medical school [34]. The baseline knowledge for ambulatory conditions among internal medicine residents at university and community hospitals has been shown to be poor with a modest difference between PGY1s and PGY3s [35]. Similarly, the average score on a test designed to assess residents’ knowledge of ambulatory care for older adults was only 60% [36]. As clinic preceptors, we may overestimate a resident’s knowledge for diagnosing and treating common ambulatory conditions.

### ***Vulnerable Patients***

Many academic practices care for a patient population that is highly vulnerable, with high rates of poverty, limited English proficiency, marginal housing, food insecurity, immigrant and refugee status, low health literacy and numeracy, and high rates of comorbid psychosocial conditions. These patient vulnerabilities can contribute to the potential for error in the clinical setting. For example, low-income people with diabetes are more likely to become hypoglycemic from too-intense insulin regimens at the end of the month, when food budgets are tight [37]. And limited English proficiency contributes to a variety of errors, particularly those focused on health system-patient communication [38].

## Risk Management

Patient safety events should be reported to risk management. The role of risk management is to prevent real or potential threats of financial loss due to accident, injury, or medical malpractice. The risk managers coordinate the defense against patients, their dependents, and their attorneys after a malpractice claim has been made [39]. Early reporting helps ensure accurate recall, fulfills legal reporting requirements, and allows for early patient disclosure, discussion, and the opportunity to adjust hospital bills. Required reports will be based upon the clinic's malpractice carrier but typically include death, paraplegia/paralysis, neurological injury or deficit, brain damage, total or partial loss or use of a limb, sensory or reproductive organ loss or impairment, or serious disfigurement. The medical malpractice statute of limitations will vary by state. Residents should be aware of how to handle record requests from an attorney, lien letters, subpoenas, and summons. In general, legal documents should quickly go to the risk management office for review. Documentation in the chart should include information about informed consent, conversations with the patient/family, provisional diagnosis and medical decision-making, and conversations with consultants.

Primary care ranked third of nine specialties for malpractice claims. The most common cause of a claim was a failure to or delay in diagnosis [40]. Often, two or more physicians contributed to the missed diagnosis. The most common missed or delayed diagnoses were cancer (breast most common), infection, fracture, myocardial infarction, embolism, and appendicitis [41]. The second most common cause of malpractice claims was medication errors. Key reasons cited for medication errors included prescriber's training, drug knowledge and experience, perception of risk, high workload and time pressures, and patient characteristics such as language barriers and complexity of the presentation [38].

Disclosure of adverse events is a key component of a patient safety event. Physicians often have reluctance to disclose adverse events due to a fear of litigation, uncertainty about how/what should be disclosed, doubting the benefits of disclosure, lack of time to disclose errors, and feeling a sense of personal failure [42]. However, institutions that have employed early disclosure of errors have shown a reduction in liability payments and legal expenses [43]. Risk management and/or patient safety specialists can help coach physicians on adverse event disclosure. In general, the disclosure should be done by the attending physician. If multiple providers are involved, then collaborating on the conversation is useful but may not always be feasible in the outpatient setting. Nonetheless, physicians should not discuss errors made by other healthcare providers without including those providers in the conversation nor should they blame other healthcare providers. The conversation should be documented in the medical record, including the names of the healthcare team and patient's family/friends that were present.

Finally, if a resident or faculty member is involved in a patient safety event, receiving peer support after the event is an important step. After a patient safety event, physicians often have feelings of increased anxiety about future errors, loss of confidence, sleep difficulties, reduced job satisfaction, and concern about harm to their reputation [44]. For residents, self-perceived errors were associated with increased

risk of depression and burnout [45]. Physicians often rely on informal support systems, such as discussing an event with a colleague, partner, or supervising physician. Institutions are developing formal peer support programs to prevent or reduce the emotional and psychological distress after a patient safety incident [46]. The importance of recognizing the resident as a “second victim” in a medical error may be even more important in the ambulatory setting. Unlike the ward setting, where the structure supports ongoing daily team-based decision-making, residents in the ambulatory setting may feel isolated in their role as primary care provider of a patient who has experienced an error. As a clinic director, being aware of patient safety events and the need to support residents and faculty after an event are critical.

## Teaching Patient Safety

### *Initiatives to Strengthen Safety Systems Within an Academic Practice*

The potential for safety issues in an academic practice and the impact of those errors on both patients and providers can seem daunting. In addition to involving risk management in critical issues, it is also important to seek systems-based solutions to reduce the potential for error in an academic clinic. While there is no one-size-fits-all approach, some ideas that have been successfully implemented in academic practices include the following:

- A nurse-practitioner-based lab-review tool to prevent abnormal labs from slipping through the cracks.
- Practice partner systems that incorporate lab and diagnostic imaging result review for absent residents.
- Structured clinic handoff notes for patients of graduating residents.
- Panel review sessions in which a clinic registry tool is used to pull panel-level data for all residents, with structured review techniques residents can follow.
- Team-based roles for medical assistants and clerks to help residents outreach to patients between visits when follow-up is needed.
- Educational sessions focused on medication reconciliation and medication safety.
- Curricula on cognitive errors in medicine to help residents learn to reduce cognitive bias in practice.
- Formative feedback initiatives to allow faculty to give residents real-time feedback on their diagnostic skills.
- Root-cause analysis sessions when errors do occur, in conjunction with faculty and with risk management guidance (these can help residents process and come to terms with errors that have happened, teach them to take a systems-based approach to error prevention, and simultaneously help the practice learn how to become more error proof in the future).

## *Educational Opportunities in Ambulatory Patient Safety*

Acknowledging and addressing patient safety issues in residency clinics not only is important for clinical care of patients; it also represents a significant opportunity to educate residents about important patient safety concepts and skills. Educational conferences focused on patient safety can improve residents' comfort level and likelihood to report errors in future practice [47]. These educational opportunities can take many forms, but several programs have had success with the use of ambulatory morbidity and mortality (M&M) conference, root-cause analysis sessions, or conferences focused on cognitive error in diagnosis [48]. These educational sessions can be enhanced by the use of a structured format to guide discussion, such as the Vanderbilt Healthcare Matrix [49] or a root-cause analysis tool.

## **Conclusion**

Patient safety errors are likely underreported and underrecognized in the outpatient setting. Key areas of vulnerability include medication errors and transitions of care. Academic practices face a unique set of challenges in reducing patient safety errors due to the inexperience and transitory nature of resident trainees. However, opportunities exist to encourage event report by all clinic staff and to include trainees in patient safety education.

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# Chapter 21

## Scholarship in Clinic



Jillian S. Catalanotti and Parvinder Sheena Khurana

### Introduction

Scholarship is an important part of residency training, and programs are required by the Accreditation Council for Graduate Medical Education (ACGME) to support residents in scholarly activities [1]. Developing aptitude in scholarship has benefits at three different levels. At a personal level, it increases resident satisfaction by continuing to stimulate the academician in the resident as well as the faculty advisor. At a patient care level, it increases curiosity and critical thinking. It broadens the understanding of disease and improves patient care. At a professional level, it creates an opportunity to contribute to the larger medical literature.

Although many medical schools now include opportunities for early training in producing research and scholarship, even residents who have graduated from these schools require continued faculty mentorship to support their scholarly activity [2, 3]. In this chapter, we hope to provide clinic faculty with tools to guide residents to successfully perform scholarly activity.

### Learning Objectives

1. To describe several types of scholarship opportunities in the ambulatory setting.
2. To develop basic skills necessary to successfully perform scholarly activity.

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3. To build skills needed to coach residents to successfully perform scholarship related to continuity clinic
4. To have a toolbox of resources and publicly available curricula to facilitate resident scholarly activity

## Outline

- Define scholarship and opportunities for scholarship related to resident continuity clinic
- Resources available to develop skills needed for scholarly activity and a toolbox to support scholarship success
- Writing clinical vignettes and case reports
- Authorship concerns

## What Is Scholarship?

Scholarly activity involves some skills that are similar to those needed for the care of internal medicine patients, such as having a methodical approach, attention to detail, an understanding of causal relationships, and curiosity for all possible explanations to a problem at hand. Scholarship further requires taking a holistic, global view of a problem and creating and testing hypotheses based on experience and knowledge of the existing literature [4]. Scholarly activity in medicine may occur in many forms, and peer-reviewed, published work spans case reports, abstracts, curriculum evaluation, quality improvement, and original research, among other formats.

## Scholarship Opportunities Related to Continuity Clinic

Experiences in a resident clinic easily lend themselves to several different types of scholarship activities. The most straightforward are clinical vignettes or case reports, literature reviews, and quality improvement (QI) projects. In addition, the ACGME requirement to audit residents' clinical performance can be used as the basis for scholarly activity. Curricula developed for the ambulatory setting can also be studied for effectiveness or submitted to peer-reviewed publications, such as the Association of American Medical Colleges' (AAMC) MedEdPORTAL [5]. Finally, hypothesis-driven research in resident clinic may include chart reviews or prospective studies. Scholarly work may be submitted to scientific journals or to national, regional, or state meetings of professional societies. In addition, many academic medical centers hold resident research days as opportunities for residents to present their work.

## Resources to Develop the Skills Needed for Successful Scholarly Activity

Most residents have little formal education in medical writing and publication. Less than 15% of medical schools provide training in writing skills [6, 7]. Medical writing curricula have been developed for residents, and at least one is available on AAMC's MedEdPORTAL [8]. The Alliance for Academic Internal Medicine (AAIM) has a "Scholarship Pearls" section on their password-protected website, which includes short presentations on survey design, poster presentations, submitting workshop proposals, and the peer review process [9]. The American College of Physicians (ACP) and Society of General Internal Medicine (SGIM) websites have guidelines for writing clinical vignettes that are quite explicit and read like instructions for authors [10, 11]. Tips for turning clinical vignettes into publishable case reports are also available through SGIM [12].

When designing posters for presentation, consider making a residency program poster template that can be given to residents to use upon acceptance of their work. To do so, consider working with your institution's marketing office so that your institution's official external logo, official color palate, and layout tips are properly included. Some institutions may have a marketing or printing office that can print posters for residents at discounted prices compared to retail copy or print companies. Scientific poster templates are also available to download in PowerPoint format for free through [makesigns.com](http://makesigns.com) [13].

### Scholarly Activity Toolbox

Resource	Description	Where available
AAIM Scholarship Pearls	Presentations about survey design, making posters, submitting a workshop proposal, the peer review process	<a href="http://www.im.org/p/cm/ld/fid=1291">www.im.org/p/cm/ld/fid=1291</a> <i>Login limited to members</i>
ACP Clinical Vignette Preparation	Instructions for writing clinical vignettes	<a href="http://www.acponline.org/membership/residents/competitions-awards/abstracts/preparing/vignette">www.acponline.org/membership/residents/competitions-awards/abstracts/preparing/vignette</a>
SGIM Clinical Vignette Submission Information	Instructions for writing clinical vignettes	<a href="http://www.sgim.org/meetings/annual-meeting/call-for-abstracts-vignettes-ime-cpi/vignette-submission-info">www.sgim.org/meetings/annual-meeting/call-for-abstracts-vignettes-ime-cpi/vignette-submission-info</a>
Downer A, Swindells S. Developing case studies: A guide for teaching ATEC (AIDS Education and Training Center)	Six steps for writing an effective case study	<a href="http://www.go2itech.org/HTML/CM08/toolkit/tools/print/casebased/Developing_Clinical_Case_Studies.pdf">http://www.go2itech.org/HTML/CM08/toolkit/tools/print/casebased/Developing_Clinical_Case_Studies.pdf</a>

Resource	Description	Where available
APA Science Student Council. A Graduate Student's Guide to Determining Authorship Credit and Authorship Order. 2006	Tips for negotiating authorship	<a href="http://www.apa.org/science/leadership/students/authorship-paper.pdf">http://www.apa.org/science/leadership/students/authorship-paper.pdf</a>
Farmakidis A, Bradford A, DeVilbiss MB, Campi J, Karlin ES, Gallo TF. Handbook for <i>Academic Medicine</i> Writing Workshop	Guidelines for writing research reports, manuscripts, abstracts, letters to the editor, and other categories of journal submissions	<a href="http://journals.lww.com/academicmedicine/Documents/Handbook%20for%20Academic%20Medicine%20Writing%20Workshop.pdf">http://journals.lww.com/academicmedicine/Documents/Handbook%20for%20Academic%20Medicine%20Writing%20Workshop.pdf</a>
Moore K. A medical writing curriculum for internal medicine residents: using adult learning theory to teach formal medical writing and publication of case reports	Three-part medical writing curriculum designed to be led by faculty for residents	<a href="http://dx.doi.org/10.15766/mep_2374-8265.10073">http://dx.doi.org/10.15766/mep_2374-8265.10073</a> <i>Abstracts publicly available, access to materials requires creation of free account</i>

## Writing Clinical Vignettes

Clinical vignettes can be thought of as bite-sized case reports that are submitted for oral or poster presentation at conferences. Composing clinical vignettes and case reports encourages learners to review the literature with an eye to its gaps, to compose learning objectives that are relevant to the field, and to meaningfully contribute to medical knowledge. These vignettes are patient cases seen by the resident or one of his/her coauthors with educational value for a larger medical audience of generalist or subspecialist physicians. Encouraging residents to proactively keep case logs or lists of potentially interesting patient cases can be useful. They can then refer back to these lists when an opportunity for submission arises. Typically, cases should be rare diseases, rare presentations of common diseases, or cases with notable learning points that are useful for a general medicine audience. JAMA Internal Medicine also publishes "Teachable Moments," which are submissions written by students or residents that detail patient harms or near harms caused by excessive care.

Although patient consent is typically not required for clinical vignette abstract submission to conferences, as a rule, written consent is needed to submit a case for journal publication. We have found that patients are usually willing to provide consent and are glad to hear that their own medical problems can be used to teach other physicians. Some patients enjoy seeing the poster or manuscript, and we recommend offering to provide them a copy after publication.

## Basic Tips for Writing Case Reports or Clinical Vignettes

The first steps are selecting a case, performing a literature review to determine if it is publication worthy, composing learning objectives, and obtaining consent from the patient. Second, select the journal or conference for submission. Remember that cases and learning objectives may appeal to a general medicine audience (e.g., conferences such as those for the Society of General Internal Medicine, American College of Physicians, Society of Hospital Medicine) even if they are not suitable for a subspecialist audience. Some medical societies accept posters for state or regional meetings in addition to national ones. Some may have regional competitions in multiple presentation categories, with winners given the opportunity to present at the society's national meeting.

Always be sure to carefully read (and reread!) the detailed instructions for authors for any journal or conference to which you wish you submit your work, as each will have different requirements. We recommend the ACP or SGIM websites or Dr. Moore's writing curriculum on MedEdPORTAL cited above for more detailed guidelines on case writing [8, 10, 11]. Some basic rules that should be emphasized are:

- Neither the patient's name nor initials should be used. Any photographs should strive to protect patient anonymity whenever possible.
- Two, or at maximum three, learning objectives should be clear to the author while writing the case. Some journals or conferences ask that these be explicitly written.
- Following a summary of the case (written in past tense), the bulk of space should be taken up by the discussion, including a review of the relevant literature. The case should be used only as a launching point for this discussion. The discussion should help the reader achieve the learning objectives.
- Refer to all medications by their generic names.
- Include standard units for measurements of laboratory results.
- When making a poster, find out if your institution already has a template that you may (or are required to) use.
- Remember that journal publications require authors to attest that their submission has not been published elsewhere nor is it concurrently under submission at any other journal. This rule generally does not apply to submissions for regional or national conferences; however, always read the instructions for authors to be sure.

## **Publishing Educational Materials**

Involving trainees in curriculum design and guiding them to publish their work can provide important mentorship toward a career as a clinician educator and are typically recognized as part of a promotion portfolio demonstrating achievement for a faculty member in a clinician educator position. As stated above, curricula and educational materials may themselves be submitted for publication on AAMC's peer-reviewed MedEdPORTAL. Submissions typically include a facilitator guide; slides, handouts, or other educational materials; and some evidence of the curriculum's effectiveness.

## **Studying Curricular Innovations**

Typically, when faculty design and implement new curricular innovations or teaching sessions, they perform surveys or other tests to demonstrate effectiveness at changing learners' attitudes, knowledge, or skills. In addition to using this data internally as formative feedback for teaching sessions, with proper IRB approval, this represents an opportunity for scholarship and publication. Large curricular undertakings or those with more general appeal may be studied and submitted for publication to a medical education journal, such as *Academic Medicine*, *The Journal of Graduate Medical Education*, *Teaching and Learning in Medicine*, *Medical Education*, or *The Clinical Teacher*, among others. Smaller curricular undertakings or those with a lower number of participants may be appropriate for submission as abstracts to national conferences that focus on medical education, such as AAMC, SGIM, or AAIM, or for submission to the AAIM Insights publication.

## **Quality Improvement**

The ACGME requires that all residents participate in quality improvement (QI) projects. The longitudinal nature of continuity clinic lends itself nicely to implementing several Plan-Do-Study-Act rounds of QI activities. Quality improvement work has become increasingly recognized as scholarship by general medicine societies, and several regional and national conferences may accept QI abstracts for presentation in categories such as innovations in clinical practice, innovations in medical education, quality improvement, technology and innovation, or the like. In addition, quality improvement work may be submitted for presentation at conferences of the Institute for Healthcare Improvement or the American College of Medical Quality.

## Authorship

Authorship should accurately reflect the contributions of the individuals involved in a project, including contributing meaningfully to both the work and the final written product, as well as approving it in its final version for submission [14]. The person primarily involved in conducting the study and writing the report is usually the first author; in this case, typically this is the trainee or student. The most senior author (or supervising author) is usually the final author. All authors are responsible for the accuracy of the work presented. To ensure that the negotiation of authorship is a positive experience, we recommend that trainees discuss the order and expectations of all authors up-front and transparently. Many journals have clearly defined the criteria for authorship available in their instructions for authors.

## Conclusion

Supporting the scholarly activity of residents is not only required by the ACGME but can also be fulfilling for faculty members and trainees alike. Developing the skills needed to successfully perform scholarly activity may increase resident and faculty satisfaction and will serve them both throughout their academic careers. Most medical schools do not provide training in medical writing or other skills needed for success in scholarly activity. Many publicly available resources exist to help faculty and residents to develop the skills needed to perform scholarship. Activities related to continuity clinic may lend themselves to scholarship, especially clinical vignettes and case reports. We recommend that, rather than leave scholarship mentoring exclusively to subspecialists, continuity clinic preceptors embrace their role as potential mentors and consider supporting residents in scholarly pursuits related to clinic, especially publishing and presenting clinical vignettes and case reports.

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**Part VI**  
**Models of Care Delivery**

# Chapter 22

## Patient-Centered Medical Home



Priya Radhakrishnan

### Introduction

The Patient Centered Medical Home (PCMH) is a care of delivery model aimed at providing coordinated care for patients with complex, chronic medical problems. Residency and faculty practice clinics typically care for patients who have a high burden of chronic disease and belong to populations that are traditionally underserved. With the focus on health care moving towards demonstrating outcomes, PCMH transformation is invaluable in providing pathways for improving the care for patients. This chapter focuses on providing an overview of PCMH within the academic Internal Medicine clinic.

### Learning Objectives

1. Review the broad historical significance of PCMH and define major PCMH concepts.
2. Describe the benefits of implementing PCMH in an academic practice.
3. Understand the role of a clinic director in applying for and maintaining PCMH recognition.
4. Use case studies to learn about common issues that arise during the transformation process.

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## Outline

- PCMH history and evolution
- PCMH certification/recognition
- Initial application
- Data
- Maintaining certification
- Engaging faculty
- Engaging patients and patient advisory councils
- Potential problem areas
  - Case Study 1
  - Case Study 2
  - Case Study 3

## PCMH History and Evolution

The patient-centered medical home (PCMH) is a model of care delivery that is designed around the needs of the patients and has its foundational elements in care coordination and communication. Originally developed as a method of delivering primary care to patients with complex chronic conditions, it has evolved into one of the building blocks for health-care delivery reform [1] and now includes the entire patient population. The term was first coined in 1967 by the American Academy of Pediatrics to describe care models needed for children with special needs and modified in 1978 by the Hawaiian pediatrician Calvin Sia [2]. The principles were later adopted and ratified by the national primary care organizations: the American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, and American Osteopathic Association who developed the Joint Principles of the Patient-Centered Medical Home [3].

Adapted from the Agency for Healthcare Research and Quality (AHRQ) definition [4], the Patient-Centered Primary Care Collaborative (PCPCC) describes the medical home as “an approach to the delivery of primary care,” that is:

- Patient centered: A partnership among practitioners, patients, and their families ensures that decisions respect patients’ wants, needs, and preferences and that patients have the education and support they need to make decisions and participate in their own care.
- Comprehensive: A team of care providers is wholly accountable for a patient’s physical and mental health-care needs, including prevention and wellness, acute care, and chronic care.
- Coordinated: Care is organized across all elements of the broader health-care system, including specialty care, hospitals, home health care, community services, and supports.

- Accessible: Patients can access services with shorter waiting times, “after-hours” care, 24/7 electronic or telephone access, and strong communication through health information technology (HIT) innovations.
- Committed to quality and safety: Clinicians and staff enhance quality improvement to ensure that patients and families make informed decisions about their health.”

The Society of General Internal Medicine took a leadership role in 2009 and convened a series of conferences aimed at evaluating the efficacy of the PCMH movement. It was not until the Patient Protection and Affordable Care Act (also known as the ACA or “Obamacare”) was signed into law by President Barack Obama in 2010 that the model truly gained national attention. The law included provisions for enhancing primary care and medical homes, primarily through increased reimbursement from Medicare and Medicaid. The passage of this act prompted widespread pursuit of PCMH certification among clinics and organizations seeking enhanced reimbursement for the transformation [5]. Subsequently, the Centers of Medicare and Medicaid Innovation (CMMI) have announced several demonstration projects such as Comprehensive Primary Care Plus (CPC+) [6] that seeks to strengthen primary care through the development of regionally based multi-payer payment reform and care delivery transformation.

The evidence regarding the success of the PCMH is mixed. Early studies demonstrated reduction in some rates of utilization but not others [7]. However, as the model has matured, the data systems have improved, and payment reform has become more robust; there is increasing evidence of the efficacy of the PCMH transformation. Paustian et al. [8] in their study found that increased adoption of the PCMH domains of function (such as the use of PCMH communication tools, use of an all-payer registry, generation and use of performance reports, and tracking of metrics and 24/7 access) correlated positively with improvements in cost and quality. The impact of the PCMH model of care appears to improve with the degree of PCMH implementation achieved and with incremental improvements yielding higher in implementation [8]. Not unexpectedly, the maturity of PCMH processes also appeared to correlate with the cost savings [9].

PCMH primary care practices vary in their structure based on geography, size of the practice, patient population, etc. It is not a “one-size-fits-all” framework. Some of the factors that inform the unique characteristics of a medical home include its location (i.e., urban versus rural setting), composition (e.g., solo/small practice, midsize primary care practice, large multispecialty practice, academic-affiliated practice, etc.), the patient population it serves (e.g., health status, other social and economic characteristics), and whether financial or performance incentives are provided.

Regardless of the specifics of the practice, PCMH adoption starts with the practice leadership committing to transformation and a payment structure to support the process [10]. The clinic director is instrumental in driving and sustaining the change needed. As the primary care payment becomes clearly linked to the demonstration of quality metrics (by the implementation of the Merit-based Incentive Payment

System—MIPS) [11], academic practices, led by the faculty and the clinic leadership, have the unique opportunity to designing quality improvement projects with the residents. Academic clinics with residency programs, particularly those affiliated with hospital systems, tend to have more incentives to use HIT to leverage shared resources such as care coordination and data analysis. Partnerships with the hospitals or Accountable Care Organizations (ACOs) can lead to reducing inappropriate emergency room visits and readmissions. The larger hospital systems also have incentives to fund PCMH programs in academic clinics.

## **PCMH Certification/Recognition**

There are several organizations that have accreditation or recognition programs that clinics can apply to get an “official” PCMH status. The National Council on Quality Assurance (NCQA) PCMH recognition is one of the most widely adopted models for transforming primary care practices into medical homes. Other programs include the Utilization Review Accreditation Commission (URAC), the Joint Commission Primary Care Medical Home Program, and the Accreditation Association for Ambulatory Health Care Medical Home Program. All the certification programs have costs associated with the application and maintenance of the standards. It is important to note that the NCQA is currently in the process of updating the PCMH recognition program in 2017. The redesign is based on the feedback from all stakeholders (including practices, policymakers, and payers). It is aimed at making the certification process more flexible and user-friendly, is focused on personalized service, and will require annual check-ins to ensure continuous improvement, a major change from every 3-year submission of data.

A major difference among the organizations is the method of certification/recognition: NCQA conducts a self-attestation, whereas the URAC, the Accreditation Association for Ambulatory Health Care, and the Joint Commission use on-site surveyors [12]. The NCQA recognizes residency training program sites in their PCMH program; however, the data attribution is done only for the practice and attending physicians, and the residents who rotate in those practices are not recognized [13].

## **Initial Application**

As with any major program that has an impact on the fundamental structure, it is important to engage the leadership (system/hospital/medical group/health center). In addition, it is important to get buy-in from the residency program and staff leadership. In large health systems, it is not unusual for the system leadership to decide to pursue NCQA recognition and bring in the clinic and residency leadership to implement the process.

Either pathway requires a feasibility analysis. Based on my experience, it is important for the clinic director or manager to assemble a small leadership group. This group should include all stakeholders (e.g., patients, staff from the front and back office, nurses, physicians, residents, and HIT personnel). The process of application for certification is long and onerous. The group should pick the organization for recognition/certification based on discussions with the health system leadership. Familiarity with the certifying organization (by means of existing centers of excellence, patient safety standards, or preferences from the payer with whom the pilot is considered) should be considered. Champions should be identified early.

The PCMH transformation process must be approached methodically, and a project manager should be assigned. The approach used to manage the project may begin with a simple system such as a wall of sticky notes and supported by software such as Smartsheet™, Microsoft Evernote™, or Excel™. Many EHRs have built-in registry functions or population health tools that can aid the process. However, it is important to recognize that considerable work may be needed to improve the quality and attribution of the data set, based on the organizational HIT sophistication. Many of the PMCH standards map directly to the Meaningful Use measures that were required by the Medicare and Medicaid EHR Incentive Programs [14, 15] and are available to most clinics that have participated in the program. The Meaningful Use program was aimed at “using certified electronic health record (EHR) technology to: improve quality, safety, efficiency, and reduce health disparities; engage patients and family; improve care coordination; and population and public health; maintain privacy and security of patient health information” [14]. Taking an inventory of available reports and mapping them to the standards help with organization of the data. This should be followed by development of workflows to manage the transformation.

The certifying organizations have clearly organized educational sessions (conferences, webinars, and checklists), all of which are very helpful in the process. The team that is involved in the certification or recognition process should meet regularly, with a predetermined agenda using project management techniques to ensure timely completion of the process. Initial certification should take between 3 and 12 months based on the resources available [16]. The levels of recognition are based on a point system.

Patient involvement must begin at the outset of the PCMH recognition process. It is not unusual for clinics to start the process and add patients or develop a Patient Advisory Council (PAC) as an afterthought. In order that the process is truly patient centric, attention must be paid to inviting patients to join the transformation early on, with clear goals and educational sessions for the patients. Patient representatives can provide the clinic with insight into most of the processes and are typically willing partners for transformation. Involving residents and staff to attend the PAC meetings and giving them a formal seat at the table promote collaboration and involvement of the entire team in the transformation process.

As with any transformative process, the clinic director plays a significant role in championing the project, marketing it to faculty colleagues and residents, and

developing small quality improvement projects that involve faculty, residents, and students to help with the certification process.

Engaging the residency program director and faculty is advantageous to both the clinic leadership and the residency program. PCMH transformation fits well into the Clinical Learning Environment Review (CLER) focus areas [17] defined by the Accreditation Council of Graduate Medical Education (ACGME). Involving residents and faculty will also ensure that the residency program is enhanced by the process. For example, many residency clinics care for large populations of patients with significant health-care disparities; integrating the PCMH curriculum within residency training can inspire residents to make changes in their practices and witness real-time transformation. Using a standard process for quality improvement such as Plan-Do-Study-Act and following the Standards for Quality Improvement Reporting Excellence (SQUIRE) [18] guidelines on reporting quality improvement make this exercise into an academic project worthy of scholarship.

## Data

Increasingly in today's data-driven health-care environment, there is almost a visceral reaction that most physicians display while being given their data.

Per Sandy et al., "In today's health-care environment where the practice of medicine is increasingly data-driven, it is important for physicians to develop appropriate practice management actions based on the data, and avoid both overreaction and underreaction" [19]. This source further notes that there is a positive association between the NCQA recognition program and achieving quality benchmarks, but it may also negatively associated with achieving efficiency benchmarks. The efficiency benchmark tends to be achieved at a later stage of PCMH transformation predominantly due to the addition of new workflows while simultaneously failing to remove redundant processes especially in the early stages. In order to ensure that efficiency and costs are contained, while applying for and subsequently maintaining certification, it is important for the clinic leadership to manage overall processes using strategies such as Lean Six Sigma to reduce the additional burden on staff and faculty" [19].

The clinic data team involved in developing the reporting framework must initially educate themselves on the quality of data. Despite significant widespread adoption of electronic health records, lack of good quality data is often the norm rather than the exception. Being prepared to evaluate and help "clean the data" is an important step that will determine the success of the transformation.

It is important that the faculty members who are responsible for the standards be accountable to the PCMH team in ensuring that the standards are met. Increasing numbers of residency clinics have dedicated administrative time built into block clinic rotations to achieve this objective. It is important both for the residents and supervising faculty that there exist clear expectations and a curriculum that defines

the best use of this administrative time to complete tasks and to mobilize the care coordination essential for patient-centered care. This is an important venue of engaging the learners (residents as well as the faculty who may not be familiar with the process of data measurement and improvement). Having a robust PCMH program can lead to innovative curricula and programs that may, in turn, attract a higher caliber of residents and faculty.

## **Maintaining Certification**

Achieving certification or recognition is the first step in the process of PCMH transformation. To ensure that the process is woven into the fabric of the clinic, the clinic director and leadership should model the patient-centered behaviors such as ensuring expanded access to care, timely reporting of test and referral results, accommodating patient preferences, and shared decision-making. Unless attention is paid to the continuous process of quality improvement, it is not unusual for clinics to have lapses. Having PCMH reports (based on the reporting criteria) at faculty and resident meetings as a standing agenda item is recommended to ensure continuous improvement.

In a residency/faculty practice, access to care is often limited due to conflicting schedules, teaching conferences, and other activities in the academic department. Expanding the care team and redesigning the process of care delivery by including with redesigning the team [20], including pharmacists and nurses to deliver chronic care, training medical assistants to be partners in health-care delivery [21], and using email, text messaging, and telemedicine often improve access to care.

For clinics with many high-risk or vulnerable patients (i.e., significant needs around the social determinants of health, behavioral health problems, pain and addiction, or homelessness), multidisciplinary rounding has been shown to be effective (with the involvement of the entire care team including home visit nurses and social workers when indicated) [22]. Developing multidisciplinary team-based rounding requires a significant preparation of agendas, process for identification or referral of patients, and regular follow-up.

## **Engaging Faculty**

Academic faculty practice clinics often are staffed by part-time faculty who have multiple administrative or academic responsibilities or those who may be pursuing part-time careers. This often causes problems with continuity of care. Team-based models are optimal for such practices which should include other members such as nurse practitioners or pharmacists to ensure that the care is truly patient centered and not physician centric.

## Engaging Patients and Patient Advisory Councils

As previously noted, patients are a valuable and a necessary partner during the transformation. One common error during the process is that while PACs are developed, these advisory councils are not educated nor empowered to make decisions.

While developing a PAC, it is important to spend time defining the makeup of the PAC and to identify the resources needed. The PAC must represent the community of patients. Clinics with high numbers of non-English-speaking patients should make a special attempt to bring interpreters and present materials (agendas and information) in the appropriate language.

It is also important to share the data with the PACs to seek their help in the improvement process. In the author's experience, patients can help with setting agendas, improving satisfaction scores by serving as "secret shoppers," and developing pre-visit questionnaires. Academic clinics with empowered PACs are also positioned to apply for Patient-Centered Outcomes Research Institute (PCORI) grants. They are also helpful in piloting initiatives around shared decision-making and providing the patient perspective on high-value care.

## Potential Problem Areas

### *Case Study 1*

The NCQA recognized primary care clinic has a robust process for quality improvement that includes stakeholder analysis prior to beginning any improvement project. The health system undergoes leadership change, and the new leadership, under pressure from the Accountable Care Organization, decides to centralize all data management without consulting the physicians or clinic leadership. They decide to tackle the problem of monitoring controlled substance (CS) prescriptions, especially opioids, by making a registry of patients who were prescribed any CS. The pharmacist at the centralized system runs reports of the patients who are on opioid medications per the EHR and sends an email to each physician, whose name was on the list of controlled substance prescription registry, stating that they are noncompliant with the opioid policy and need to "clean up the list" or else they would be reported to the Chief Medical Officer (CMO). At the newly formed quality meetings, the CMO picks on "noncompliant" physicians and portrays them as bad doctors. The clinic director who attends these meetings is embarrassed and relays to the faculty that they need to work on their lists. He starts a QI project with a PDSA cycle. As the team reviews the data, it becomes obvious that the data is incorrect. The list contains the names of patients who have not actually received opioid prescriptions but have the medication on their medication list. It also includes patients who have not been seen for over 2 years and have not received care or refills from the clinic. The director sends an email detailing the problems with the data and

expresses his frustration with the method. The pharmacist tells the director that it is not his problem and he should address this with the CMO.

This is not an uncommon scenario in many organizations that take a shotgun approach to try to improve quality. PCMH transformation is heavily dependent on a data-driven approach to improvement. As health systems try to accelerate their improvement, the single most important factor that determines success is effective communication. A “shaming” tactic leads to lack of trust and burnout due to lack of perceived value.

It is a good idea for the clinic director to try to work with the pharmacist and the hospital administration to resolve this issue. There is valid concern about having clean processes for safe prescribing of CS, given the opioid epidemic. In this case, communication can be improved using a standard communication tool [23–25]. SBAR (Situation, Background, Assessment, and Recommendation) and A3 are commonly used tools that have been used effectively in health care. The clinic director in this case also looked for external resources and identified a staff member who was placed on modified duty to prioritize work with the list, as this was obviously an important topic for the leadership. The clinic also improved their scores by enlisting the support of the refill nurse who reviewed all opioid prescription requests and ensured that patients on chronic opiates had controlled substance agreements and random drug screens.

It is important for physician leadership to be sensitive to the nuances of quality improvement and system transformation, failure of which leads to increased burnout and physician dissatisfaction. This case highlights the importance of communication styles in process improvement. PCMH champions, including the clinic director, must manage communication styles to avoid burnout.

## *Case Study 2*

The PCMH team, including clinic director Dr. AA, nurse BB, medical assistant CC, and clinic manager DD, meets with their designated Health IT counterparts to discuss the PCMH report generation that is required for their reporting. They have picked breast cancer screening with mammography as one of their preventive measures.

During the meeting, they are presented with the initial reports. Dr. AA reviews her report and is flabbergasted by the fact that her breast cancer screening rate by mammography is only 2%. This leads to a contentious discussion; Dr. AA claims that the “data is bad” and that this process cannot go on. Dr. AA reviews the first 20 patients on the list and finds that a couple were men, another had a bilateral mastectomy, and many were under the age of 40 and didn’t meet the screening criteria. Several more had undergone mammograms but showed up erroneously in the report as not having undergone the process. She sent this information to the IT team who reconfigured the registry and reran the report. After these changes, the new report showed her screening rate at 40%.

The team then developed breast cancer screening workflows with the medical assistants, nurses, and physician champions. Two of the physician champions who

had baseline mammography rates of 40–45% improved their rates to 70% after the intervention.

Data, data, data! Attribution and validity continue to challenge systematic health-care delivery reform efforts. Physicians reeling under national changes in health-care delivery have had a common refrain that the data is incorrect and they are, for the large part, correct.

It is important that, as a physician leader, the clinic director understands and owns this problem. Most commonly, the clinic director joins the chorus leading to a stalemate and lack of progress. To validate the data set, the PCMH team should review small sets of data (e.g., one provider within a short time frame) and communicate errors to the team. Some organizations have personnel in their IT teams whose sole responsibility is to validate the data; others do not. This process can be time-consuming but is incredibly important in “cleaning the data.” Team-based verification (i.e., members of the team working with small data sets and collaborating closely with the IT team) helps to continuously improve the data quality.

### *Case Study 3*

Dr. AA and Dr. EE are ecstatic that they worked out the kinks in the mammography report and improved their rates to 70%. They feel confident that their processes and workflows are excellent. The teams (physicians and medical assistants) present their workflows at a faculty meeting and note that the process allows medical assistants to order the mammograms after verifying eligibility.

When they present their accomplishments, some of the physicians in their group are concerned about the delegated responsibility. One notes, “How can I let an MA order mammograms? It is my license on the line.” Two of the physicians refuse to let the MAs order mammograms on their behalf. The rest of the faculty are split. At the next faculty meeting, one of the physicians notes that her MA ordered the test for a patient who had a mastectomy. The faculty continue to oppose clinic-wide implementation of standardized order sets for ordering mammograms by staff, stating that they do not want to practice “cookbook medicine.” The clinic director decides not to implement clinic-wide order sets; instead the director continues to present the screening rate data.

This is a common issue among physicians who are concerned about delegated responsibility. To ensure that their concerns are addressed, education of the care team is important. While in some instances making an executive decision to implement order sets may be an option, getting buy-in and continuously reviewing the transformational process build a culture of trust and reliability. In this case, the clinic director chose to continue to review the mammography rates at every faculty meeting. Once a critical mass of physicians and providers continued to improve, he unblinded the screening reports. Physicians who worked with their teams had a higher rate. In addition, he used storytelling with accounts of satisfied patients at each meeting. Ultimately, there was universal adoption of order sets, and clinic screening rate improved to 80%.

## Conclusion

The journey of transformation is long and arduous with several bumps on the way. The PCMH is an important step toward improving the health system. The clinic director plays an important role in leading the transformation efforts as well as acting as a cheerleader for the efforts.

- PCMH transformation is vital for academic clinics to ensure that they truly provide high-value care: take care of patients with complex chronic diseases and be at the forefront of population health initiatives.
- Clinic directors are in the unique position to help lead the transformation efforts and guide projects to ensure that the transformation efforts support the scholarly activities to fulfill ACGME requirements for residents and faculty.
- While initiating or maintaining the PCMH designation, the clinic director is instrumental in ensuring success of the efforts.

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# Chapter 23

## Veterans Affairs Continuity Clinics



Rebekah A. Kaplowitz

### Introduction

The Department of Veterans Affairs (VA) has partnered with US medical and allied health professional schools since 1946 as part of its mission to train new health professionals and provide high-quality healthcare [1]. In addition, VA academic medical centers have been a key factor in the transformation of the VA to develop innovations in quality healthcare delivery [2, 3]. A key requirement for graduate medical education in internal medicine is the residency continuity clinic; the VA medical center provides an opportunity for outpatient training [4]. However, there are several practical factors to consider when incorporating residents into the VA clinic setting. Whereas many internal medicine resident continuity clinics occur within university hospital clinics or community safety net clinics, the VA has a distinctive organizational structure as a publicly funded health maintenance organization for a patient population limited to US military veterans and in rare cases their non-veteran spouses [5–7]. The healthcare team in academic as well as nonacademic VA primary care settings is aligned per patient-centered medical home principles called the Patient Aligned Care Team (PACT) [8]. In addition, residents who are trained in VA clinics must still obtain adequate case mix for gender, age, and comorbidities in order to receive high-quality medical training as defined by the Accreditation Council for Graduate Medical Education [4]. The unique health needs of veterans pose challenges and opportunities for residents as well as experienced attending physicians [9]. This chapter will address the organization of VA healthcare delivery, management of specific gender and comorbidity case mix issues to meet accreditation requirements, and strategies to integrate the residents into the VA clinic culture.

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## Learning Objectives

1. Review the team-based approach specific to Veterans Affairs continuity clinics.
2. Discuss approaches to achieve educational parity for residents who have VA continuity clinics despite demographic and case mix differences.
3. Prepare to implement best practices in new or pre-existing VA resident primary care clinics.

## Outline

- PACT and Academic PACT
  - Maintaining Continuity for Resident and the Patient
  - Patient Care between Clinic Sessions
  - Patient and Resident Engagement with the APACT
- Demographic and Clinical Differences Between VA and Continuity Clinic Populations
- Care in Resident Continuity Clinic for Women Veterans
- General Considerations When Establishing a Resident Clinic in the VA
  - Maintaining Educational Quality
  - Resident Use of the Computerized Patient Record System (CPRS)

## PACT and Academic PACT

The core feature of primary care delivery in the VA is the adaptation of the patient-centered medical home, called the Patient Aligned Care Team (PACT). The model has an emphasis on multidisciplinary care, care coordination, nontraditional encounters such as tele-health monitoring and group visits, and patient-centered communication [10–12]. Since this model's national implementation in 2010, there is evidence that it improves emergency room visits and hospital admissions secondary to ambulatory care sensitive conditions [10, 13].

The PACT model is based on assigning veterans eligible for primary care to a team consisting of an attending physician, registered nurse care manager (RNCM), medical assistant (licensed practical nurse, licensed vocational nurse, or health tech depending on the facility's staffing preferences), and clerk [14]. A fully developed PACT will also have direct access to psychologists, pharmacists, and dieticians integrated into the PACT and primary care setting. Each VA academic medical center has integrated its residents into the PACTs in its own way, but there is currently

a movement to integrate training environments from several disciplines as well, called the Interprofessional Academic PACT (iAPACT) [15–17]. Each VA residency continuity clinic may incorporate features of the PACT to assist with communication between the patient and team members to improve patient care as well as the resident’s continuity experience [18].

### ***Maintaining Continuity for the Resident and the Patient***

Given that longitudinal continuity of patient care is a critical aspect of resident clinics, the PACT system optimizes continuity when assigning patients to teams [19]. Once an unassigned patient has an encounter with a resident, that patient is assigned to the panel of the resident’s supervising attending. In this system, the attending becomes the “primary care provider,” and the resident is identified as the “associate provider” [20]. Some VA hospitals have groups of associate providers who share responsibility for a panel of patients, while others consolidate responsibility to individual resident-attending dyads. The former program design may be most useful for a rotating block schedule (e.g., X weeks of inpatient training alternating with Y weeks in the outpatient setting, or “X + Y”), while the latter is most practical when the continuity clinic schedule is one session per week regardless of the clinical rotation. The target panel size for the residents builds yearly but is only a rough estimate; this author’s facility has chosen 60 for first-year residents, 90 for second-year residents, and 105 for third-year residents. The patient may interact with the PACT by face-to-face encounter, telephone encounter, telemedicine device, or health portal ([www.MyHealthVet.gov](http://www.MyHealthVet.gov)). Whether the veteran has VA insurance only, private insurance, Medicare, or Medicaid, in-person and electronic patient contact is coded per Medicare guidelines to track utilization of services [21, 22]. The intent of the PACT and iAPACT is full utilization of all team members in the care process, and Bowen et al. have written eloquently about the modalities needed to maintain continuity for best practices of patient care and medical education [23].

### ***Patient Care Between Clinic Sessions***

As previously alluded to, the structure of resident continuity clinic affects the logistics of patient care within the APACT or iAPACT. For example, the VA requirement to notify patients of all lab and imaging results in a specified time frame demands that the ordering resident and the veteran’s team account for all pending labs [24]. Ordering tests and arranging follow-up is an opportunity to develop a team approach for the patient’s care. There is no one-size-fits-all strategy for communicating lab results and clinical information to patients between visits. Patients can be notified of

results by phone, letter, or health portal. Residents are expected to follow up on the tests they order, whether at the next clinic session a week later, between clinic sessions, or by arranging appropriate time-sensitive follow-up with the help of their PACT. Planning lab testing for chronic disease management prior to the appointment is an efficient method of having lab information available to discuss at the visit. The default recipient of lab results is the provider (attending or resident) who ordered the test, so if the resident will not be available to review results (on vacation, night float, ICU) then alternative arrangements utilizing the electronic medical record are available. For example, labs ordered by the resident can be routed back to a co-resident, the attending, or the team nurse if the ordering resident will be unavailable to follow-up within the mandated period [25].

### ***Patient and Resident Engagement with the APACT***

Patient education is a crucial feature of participation with the APACT or iAPACT, by informing the veteran of the array of their clinical resources for care of acute and chronic issues [26, 27]. Resident patients may call the team directly or send an encrypted e-mail message through [www.MyHealthVet.gov](http://www.MyHealthVet.gov) for clinical concerns or medication refills. The PACT RNCM can triage the clinical concern or place a medication renewal order for the attending's (or covering resident's) signature. If the clinical concern is nonurgent, the team clerk may be alerted to schedule the patient at the next available clinic opening for the resident provider. A complaint that requires a same-day appointment when the resident is not available should be addressed within the PACT structure (e.g., a nurse assessment in conjunction with the attending or an overbooked appointment into a collaborating resident's clinic).

The PACT experience is designed to maintain as much continuity between patient, provider, associate provider, and ancillary team members to provide coordinated multidisciplinary care. All members of the core PACT "teamlet" of provider, RNCM, and medical assistant are responsible for delivery of evidence-based clinical preventive measures (per US Preventive Services Task Force recommendations [28]). When patients are assigned to individual residents as associate providers, resident-level quality of care data can be extracted used to develop quality improvement projects. The attending is ultimately responsible for the clinical care provided by the residents, but the VA system provides numerous resources to assist the whole team.

### **Demographic and Clinical Differences Between VA and Continuity Clinic Populations**

The population that uses VA primary care services is overwhelmingly male and has a higher burden of chronic mental and physical illness than is seen in other resident clinics [29]. Residents assigned to a VA continuity clinic will develop a fund of

knowledge regarding medical and mental health risks specific to veterans of different periods of service. For instance, certain health issues are associated with Agent Orange exposure [30, 31] and others with the traumatic brain injury (TBI) seen more commonly in the Iraq and Afghanistan conflicts (Operations Enduring Freedom, Iraqi Freedom, and New Dawn) [32]. All women and men should be screened for military sexual trauma (MST) and appropriately referred [33, 34]. Attendings who have specific expertise caring for veterans with Agent Orange exposure, TBI, and MST can offer invaluable training to residents who may not have had exposure to these conditions and are not aware of the VA's substantial resources to assist in evaluation and management. Regardless of a resident's ultimate career goal, awareness and appropriate management of health sequelae related to military service will be essential, and a strong outpatient experience can be invaluable in that training [35].

## Care in Resident Continuity Clinic for Women Veterans

Although women veterans are a distinct minority within the VA system, the percentage of enrollment is increasing steadily [36]. Design of a continuity experience to include the care of women veterans must consider the veteran's need for a consistent locus of care, such as in a PACT with an attending who is a Women's Health Primary Care Provider (WH-PCP) [36–38]. Most VA medical centers have a Women Veterans Program Manager and/or Women's Health Medical Director who can assist the residency program in achieving appropriate clinical care along with the educational goals of ambulatory training [39], thus establishing a clinic structure with gender balance in mind.

Because the gender balance in the VA setting is still highly skewed toward the care of male patients, an educational structure must be in place to develop an adequate case mix of female and male patients that is more reflective of the general population. The particular construct used will vary depending on the existing framework in each VA location but must be addressed for certification by the Residency Review Committee of the Accreditation Council for Graduate Medical Education [4, 36]. This chapter will address options available for both X + Y and once-weekly resident clinic scheduling models. Both VA academic and nonacademic medical centers facilitate healthcare access for women veterans by identifying providers with special training and experience in women's healthcare, specifically by comprehensive women's health centers and designated women's health providers [40]. Possible mechanisms for obtaining a case mix balanced for gender include integration of residents into VA Comprehensive Women's Health Centers and ensuring that several attendings are WH-PCPs [41]. For example, a resident's regular attending can be a WH-PCP who has a substantial empaneled proportion of women veterans. Similarly, clinic weeks can alternate between a predominantly male VA clinic and a different clinic setting that is predominantly female, such as a VA Comprehensive Women's Clinic. A search of the literature showed a paucity of medical education research in this area; however, momentum is building [42–45].

## **General Considerations When Establishing a Resident Clinic in the VA**

Whether the resident continuity clinic is being newly established or has been in practice for a substantial time, the involvement of highly engaged attending physicians provides both essential supervision for patient care and for the resident experience in primary care [18]. Attending burnout is a significant concern with significant care management responsibilities from nonacademic patient care as well as the oversight of resident care [11]. The number of preceptors recruited should be more than sufficient to staff the number of residents in the clinic at any given time in accordance with the maximum ratio of one preceptor for every four trainees [4]. In addition, a contingency plan for faculty absence should be in place to allow for adequate coverage of resident clinic for both planned and emergency absences. Significant notice is required for routine cancelation of both faculty and resident clinics [46]. Advance agreement with the residency program regarding who is responsible for submitting and following up on leave requests for vacation and other planned and unplanned resident absences will improve work functioning going forward.

### ***Maintaining Educational Quality***

One overarching principle of resident continuity clinic in VA hospitals is to train physicians who are as well or better prepared than their peers to work in ambulatory care settings. To that end, the residents and faculty would benefit from close integration between the VA and the academic medical center [1]. VA staffs are encouraged to teach at program-wide resident conferences to maintain positive relationships with the academic medical center. In addition, residents with VA clinic are still accountable to the same graduate medical education standards as their peers [4]. The VA residents should use the same didactic curriculum as the rest of the training program's residents. Routine review of performance measures by the team and consideration of a performance improvement project or PDSA (Plan-Do-Study-Act) process should be expected. Attendings and clinical supervisors have access to provider- and patient-specific data for hypothesis development and testing.

### ***Resident Use of the Computerized Patient Record System (CPRS)***

To provide effective patient care in the VA continuity clinic, residents must develop facility with the Computerized Patient Record System (CPRS) [47]. This program is a powerful tool with both inpatient and outpatient capabilities. The system is

**Table 1** Recommended CPRS orientation topics [48]

• Finding a patient’s chart by last name and last four digits of social security number
• Identifying the daily schedule of patients by the resident’s individual clinic name
• Creating and using a note template with an appropriate number of elements for encounter coding
• Ordering labs and imaging with a system in place for timely review and action on results, as determined by the APACT system in place
• Ordering consults, with attention to any pre-work required by the specialty service
• Documentation of evidence-based counseling performed and preventive tests ordered using the Clinical Reminder templates will embed in the clinical note
• Coding the encounter and prescriptions accurately, with attention to remarking on military service-connected disability and exposures such as Agent Orange and military sexual trauma

complex; even residents who rotated through VA hospitals as medical students may not know how to use the electronic medical record system in outpatient care. Before new residents have their first outpatient clinic session, an orientation meeting to review the basics of clinic documentation and processes is recommended so the first session can be more productive (Table 1). It can be helpful to pair a “senior buddy” with the new intern on the first day of clinic to help them learn to navigate the system. The residents assigned to VA continuity clinic might consider obtaining offsite CPRS/VistA access privileges to maintain interaction with the team, field secure messages, and review labs from other sites when appropriate.

After orientation, ongoing review of resident work output and constructive feedback can reinforce the APACT systems and tools to develop further clinical utility of CPRS.

## Conclusion

Given the vast nature of the Veterans Administration and its network of medical centers, outpatient centers, and clinics large and small, no summary can address every educator’s personal and professional experience with the VA clinic. However, the technical and systemic challenges that are posed by the VA setting are offset by the tremendous opportunity for offering high-quality care to a population with substantial medical and mental health risk factors [21]. The VA experience can provide in-depth exposure to high-value, cost-effective care that demonstrates an alternative to the fee-for-service model seen by trainees in many other venues. It is not only vertically integrated and team-based at each site; it is also fully integrated across the nation [49]. The resident continuity experience in VA clinic provides new opportunities to study systems of care and how they affect care delivery.

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# Chapter 24

## Nontraditional Methods of Care



William Weppner and Bradley H. Crotty

### Introduction

Medicine faces several challenges that will necessitate changes in how we provide health care in the future. Health care is currently too costly at a societal level and increasingly so for individuals who have high-deductible health plans [1, 2]. Furthermore, health care is frequently organized around providers and their clinics, rather than around the patient; this often provides a suboptimal patient experience [3, 4]. Similarly, health care is often episodic, occurring at discrete encounters rather than a more continuous process. As in other service industries, information and communication technology will play an increasingly important role mediating connections between physicians and patients. At the same time, novel methods of redefining how a “face-to-face” visit looks can provide new opportunities for efficient and effective care. Resident clinic directors will need to consider when and how to incorporate elements of nontraditional forms of care, such as telemedicine, clinical video telehealth, secure messaging, and other means of providing continuity of care that occurs outside the traditional ambulatory clinic room. By incorporating this into programs, they can expose learners to novel clinical care paradigms. However, residency programs will also need to contend with new challenges related to these evolving forms of care.

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## Learning Objectives

1. Understand types of nontraditional care provision and how they differ from co-located “face-to-face” visits between one provider and one patient.
2. Learn how to incorporate nontraditional forms of care into clinical training opportunities for residents.
3. Become more aware of the evidence for effectiveness of nontraditional forms of care.
4. Review possible (and constantly evolving) mechanisms to get credit or reimbursement for nontraditional forms of care.

## Outline

- Overview of traditional vs. non-traditional methods of care
  - Types of Non-traditional care methods
  - Telephone clinics
  - Patient Portals and OpenNotes
  - Secure messaging
  - Clinical Video Telehealth
  - Nurse encounters
- Supervision requirements

## Overview of Traditional vs. Nontraditional Methods of Care

The paradigm of continuity clinic experience has long been based on the one-on-one interaction between a physician and a patient in an ambulatory clinic setting. While this is useful for creating a controlled environment in which physician residents can be supervised and supported, it has not kept up with the changing nature of chronic disease management and health-care provision for a busy populace. The requirements of the Chronic Care Model and its adaptation in the patient-centered medical home or patient aligned care team necessitate system redesign in order to improve proactive communication and management of patient interactions [5, 6]. Part of this change may be accomplished by implementing nontraditional forms of care delivery that move away from the clinic examination room [7]. These include use of technologies that can remotely connect care providers and patients as well as variations of in-person care that may incorporate different settings or team members to make care more efficient.

**Table 1** CMS codes for supporting nontraditional care by health-care teams

	Codes	Description
Transitional services	CPT 99495 and 99496	Post-discharge coordination of care with moderate or complex decision-making
Coordination of care	CPT 99490 Add on Codes: G0506, 99487, 99489	Twenty minutes or more of non-face-to-face work for patients with two or more chronic medical illnesses

### *Types of Nontraditional Care Methods*

We present a list of nontraditional forms of care in Table 1. While not all-inclusive, it presents examples of how patients and providers can connect in novel ways to extend the healing (and learning) relationship in a method that respects participant’s time and effort.

We will discuss the following forms in this chapter:

- Telephone clinics
- Patient portals
- Secure messaging
- Clinical video telehealth
- Shared medical appointments
- Nurse “chair visits” or via extended team members
- Interprofessional care conferences

While we refer to these as nontraditional care methods for our purposes, it is worth stating that the “house call” was perhaps the most traditional care method. Over time, care shifted toward hospitals and clinics, driven by financial and technological changes [8]. Ironically, many of these newer methods for care, enabled by technology, return to the patient’s home at a time and place convenient for him or her.

### *Telephone Clinics*

Telephone “clinics” in the academic setting refer to proactively scheduled clinical encounters between resident providers and their patients/caregivers to address specific health care needs that do not require a physical exam but do require two-way communication and clinical decision-making. Telephone clinics are actually a form of telemedicine, providing the care at a distance without a video feed or other associated remote monitoring or exam tools. These encounters can be linked with diagnostic tests such as labs, which the patient obtains prior to the “visit.” For example, a patient may follow up from a clinic visit for diabetes, to review blood sugars and recent lab results, discuss changes in medications, and review possible risks and

benefits of treatment. Commonly, resident providers call patients to inform them of diagnostic results or to respond to a question. However, true telephone clinics move beyond mere stimulus/response and instead seek to follow up on an evolving clinical issue with opportunities to revise a care plan. Some evidence suggests that effective telephone care in this manner can reduce cost, utilization, medication use, and hospitalizations [9]. In a training setting, telephone clinics offer the opportunity for a resident to have further contact and continuity with a patient, providing important follow up to treatment over the arc of a disease or treatment regimen.

Telephone visits remove a common barrier that patients have in accessing care—transportation. Unless they are scheduled in advance, they may not be more efficient either (e.g., the patient may be difficult to reach, in a noisy area, or the conversation may be disorganized without a planned agenda). Having small and well-defined agendas, and staff to initiate calls or ensure the patient is reachable, will help improve efficiency for both patient and provider.

While telephone-based care is not typically reimbursed in a fee-for-service model for residency programs or other providers, some exceptions apply. Centers for Medicaid and Medicare Services (CMS) now covers transitional care (post-discharge) and coordination for complex care (see Table 1) [10]. This could be an important part of improving transitions and incorporating other team members and modalities of care for more complex patients. Other cost-sharing models, including Accountable Care Organizations (ACOs), incentivize better coordination of care through global payments. Telephone clinics would fit this model.

Inertia is formidable when considering the implementation of telephone clinics as a planned patient care activity for several reasons. Navigating reimbursement around these types of services and encounters is difficult. Many administrators and medical directors are unfamiliar with changing codes and do not know which payers will reimburse for the code and which will not. This sets up a disparity for patients depending on their insurance type. It is also difficult for administrators to track and assign “work” to these encounters, similar to secure messaging described below [11]. Lastly, many clinics experience high demand for in-person visits; there is mixed evidence for how telephone clinics may impact in-person visits [9, 12]. Similar to other settings, clinics that are training sites also would require a trade-off between having residents see patients in person versus by telephone in their allotted outpatient clinic time. However, for resident clinics, it is also important to combine face-to-face clinics with telephone clinic time to meet more traditional Accreditation Council for Graduate Medical Education (ACGME) clinic requirements. One benefit for resident providers is that telephone clinics can provide short-interval follow-up opportunities to evaluate response to a newly initiated medication or to provide time to review an evolving patient workup. Beyond extending continuity of care from the patient perspective, it also provides trainees with another contact point to better learn about the course of a disease.

## *Patient Portals and OpenNotes*

Patient portals are increasingly common services provided to patients by physicians and health-care institutions. These secure websites and related mobile apps offer patients the opportunity to see their medical information and record. Some are more superficial and only provide access to appointments, medications, problem lists, etc.; others are more robust, offering almost complete access to medical notes.

OpenNotes (<http://www.opennotes.org/>) is a movement to encourage proactively sharing visit notes with patients. Most commonly, this is done through the patient portal. In a large demonstration project from 2011 to 2012 involving more than 20,000 patients and 100 of their primary care physicians, participating patients reported feeling more in control of their care and better able to follow through with plans of care [13]. Less than 10% reported that access to notes caused confusion or worry.

Residents are likely to have different concerns and expectations with sharing progress notes with patients. Like other notes, resident notes are generally viewable by patients, at organizations participating in OpenNotes, after an attending co-signature. In focus groups with residents before going live with OpenNotes, four themes emerged: implications of full transparency, note audiences and ideology, trust between patients and doctors, and time pressures [14]. Residents felt that patients may benefit from seeing their provider's thought process and also by understanding the time and cognitive effort that went into their care. Seeing concepts and diagnoses in print may help to crystallize understanding of medical issues for patients. Note quality itself might improve, with patients having the ability to flag inaccurate information. Residents were aware that notes serve many different functions, including to some degree as a teaching tool, and that documenting comprehensive differential diagnoses may or may not be helpful to patients. Residents and faculty alike were concerned about time pressures; residents were concerned about inquiries from patients outside of visits, while preceptors were concerned with the amount of time necessary to proof and correct notes before patients saw them.

Aside from OpenNotes, residents have been less likely than faculty members to encourage patients to access their medical records using patient portals [15]. Some may argue that this could be because many patients in academic panels may have higher levels of need due to medical and/or social complexity. Either way, it is worth pointing out that the OpenNotes study found that patients benefited regardless of their level of need; patients who were underserved actually benefited more [16].

## ***Secure Messaging***

Secure messaging (SM) is a form of telemedicine using asynchronous messaging and is frequently provided as part of a patient portal. Patients use messaging through portals to communicate with their clinicians but also to perform administrative tasks such as requesting prescription refills, scheduling appointments, or reviewing medical information. From the perspective of clinic directors, secure messaging may help increase the connectedness between residents and their patients, especially when in-person access may be limited. It also provides an opportunity to directly assess resident written communication skills, as supervising physicians can often review secure messages that are recorded as part of the electronic health record. Secure messaging, however, has limitations that are important for residents to understand and manage. Some limitations, including not being able to examine the patient, are similar to commonplace telephone encounters, while others, such as difficulty expressing tone, are unique to messaging [17–19]. Best practice curricula and experience, similar to telephone medicine, help [20].

Secure messages can be routed either to triage staff or directly to the physicians. While some practices may not have the resources to do nurse triage of messages, systems that have triage are preferable, given that residents may have competing obligations that preclude a same-day response. Given the asynchronous nature of secure messaging, such systems typically inform the patient that they are not to use this for urgent issues or medical emergencies. Even still, satisfaction with secure messaging is higher when responses occur within 24–48 h, which is a reasonable expectation [21]. Reviewing and co-signing notes by supervisors may be difficult for some secure messaging systems, as many systems (such as the VA) require supervising physicians to review and co-sign written documentation of their trainees. Some solutions for this include having clinic staff provide an initial response to the patient, with a note in the electronic health record flagging the exchange to the resident. Additionally, requiring that residents have their supervisors, review their responses to secure messaging can ensure appropriate clinical decision-making, as well as effective and professional communication.

## ***Clinical Video Telehealth***

Clinical video telehealth (CVT) is a step above telephone care, in which a patient sees a provider through synchronous securely linked video equipment, often facilitated by a telehealth “presenter” that can obtain vital signs and other studies while manipulating tools such as remote otoscopes or stethoscopes for a limited virtual physical exam. Video enables clinicians to gather contextual data, such as the patient appearance. This and other forms of telehealth have been touted as a means to provide more efficient care by addressing geographic and transportation issues, as well as supporting access to specialty referrals to improve care [22, 23]. Although the

majority of hospitals and health systems in the United States are adopting a wide variety of telehealth applications, far fewer support synchronous video conversations for outpatient clinical visit [24]. Outside of the VA, only a few locations in the United States participate in video conversations with their longitudinal primary care patients, with many organizations opting to first provide telehealth services by contracting with a different group of physicians [25]. This may be because the schedules of most primary care physicians are currently crowded out by in-person visits. Over time, with changes in reimbursement models, we expect more patients to be having virtual visits with their own longitudinal clinicians. Because of reimbursement limitations, telemedicine has been typically provided under special scenarios or uses. Examples include providing care to patients in rural areas, delivering expert consultation in acute stroke management, or allowing access to mental health services. This is starting to change, however, with the rise of consumer technology, changing demands, and patients willing to pay for services. Markets are emerging for online virtual care, at a rate of \$50–100 per consultation [26].

In the VA, telehealth has become an increasingly important form of care, given the lack of billing restrictions and a large population of geographically remote patients with limited access to health-care providers [27]. Few residents have received training in conducting online synchronous consultations, but there are increasing opportunities for residents to learn more about provision of telehealth services. Increasingly, curricula are available to teach telehealth consultation [28]. Opportunities exist for a resident trainee, who is co-located with a trained attending, to serve as telehealth provider for patients that are physically at a remote clinic setting (e.g., CVT primary care clinics). Similarly, residents may be co-located with a patient in their clinic site and serve as a “telepresenter” for specialty physician consultants (for example, epilepsy or cardiac electrophysiology services) who are physically at another location within the system.

### *Nurse Encounters*

Developed to improve same-day access for busy clinics with limited urgent care access, “nurse chair visits” or “nurse encounters” pair the triage and documentation skills of registered nurses with the clinical decision-making abilities of physicians. Nurse visits can help to deal reactively with “drop-in” patients or semi-urgent referrals from other clinics or clinical service that do not warrant urgent care or emergency room resources. They also can be proactively scheduled or requested by nurses or providers to follow up a treatment issue which requires physical exam or vital signs or evaluate a new focused issue. A typical nurse visit would involve a scheduled appointment in which a nurse performs triage of the acuity of the issue, a focused history, and conducts evaluations as allowed by pre-existing protocols. This may include vital signs, lab tests, and x-rays, like triage for an urgent care visit. Once the triage, focused history and diagnostics are obtained, the nurse reviews them with a resident provider that is in clinic but is not scheduled to see that patient.

Resident providers may do this between other scheduled patients during their continuity clinic time, or as part of a clinic coverage system, in which more experienced residents are available as the “resident of the day” to cover clinic duties and coverage of co-residents who are on non-clinic rotations. The resident provider reviews the diagnostics, relevant history with both the nurse and the patient, makes further treatment recommendations, and orders them as needed, under attending supervision. The nurse completes the documentation and adds the resident provider and their supervising attending as a co-signer to review. In our experience (WGW), this takes approximately 10–15 min of resident time and can be incorporated into clinic flow and schedules to improve same-day access for low-acuity needs.

## Supervision Requirements

Given the fact that many of these forms of care are new and evolving, supervision requirements may be confusing. For synchronous communication, such as telephone, nurse visits, or clinical video telehealth, supervision requirements are likely similar to those for in-person clinics but are not specifically addressed by the ACGME. That is, depending on the level of trainee, they can see patients, staff clinical decision-making with their attendings, and have them co-sign relevant documentation. For asynchronous communication such as secure messaging, real-time staffing may be more difficult, but co-signature can facilitate review of appropriate communication, clinical decision-making, and documentation. Billing issues are still evolving, and Medicare has not specifically addressed stand-alone billing for secure messaging. When trainees are new to these forms of care or less clinically experienced, direct supervision and/or immediately available on-call support is important. For clinical video telehealth services, knowing procedures for emergency situations is important, and residents should be trained in this or supervised by a trained provider. This would include knowing how to activate local emergency medical services remotely for the clinic a provider is working with. As these (and other) forms of care evolve, specific regulations on the requirements of supervision will likely be necessary, as will clarification of how to involve trainees in billing processes.

## Conclusion

Nontraditional forms of care are more dynamic and thus more challenging to implement and engage in a systematic fashion, due to previous practice patterns, as well as systems and billing requirements that are often beyond control of a training program. However, it is important to provide residents with exposure to these evolving technologies and nontraditional forms of care (Tables 2 and 3).

**Table 2** Different types of nontraditional clinical care

Nontraditional care method	Description
Secure messaging	Asynchronous <sup>a</sup> secure electronic communication between patients/ caregivers and providers/care teams. Typically integrated into patient portals or electronic health records
Telephone “clinics”	Synchronous <sup>a</sup> scheduled clinical encounters via telephone to complement or replace face-to-face encounters; typically lasting 5–20 min
Patient portals	Patient access to health-care records, possibly including appointment information and scheduling, medication information and renewal options, vaccination and preventative health information, clinical notes, and care plans; may offer secure messaging or be part of electronic health record
Clinical video telehealth	Typically synchronous, but geographically remote clinical encounters in which a telepresenter facilitates patient vitals, exam, and other necessary support. Some “store and forward” options are available as well
Shared medical appointments	Synchronous, co-located medical appointments of multiple patients and one or more providers, centered on a chronic clinical condition, such as diabetes, prediabetes, chronic obstructive lung disease, congestive heart failure, etc. May be augmented with short side visit for private consultation and/or exam
Nurse “chair visits”	Mostly synchronous, but short visit for a specific acute care or follow-up need to be facilitated by a nurse or other team member; for example, uncomplicated upper respiratory illness, simple urinary tract infection, diuretic adjustment follow-up, cellulitis recheck

<sup>a</sup>*Synchronous refers to whether the encounter/exchange of information happens at the same time for both the resident provider and the patient. Location refers to whether these happen in the same geographic location, or at a distance*

**Table 3** Pearls or “best practices” for different types of nontraditional clinical care

Nontraditional care method	Pearls
Secure messaging and patient portals	<ul style="list-style-type: none"> <li>• Assign clinic staff to triage initial messages (rather than resident providers)</li> <li>• Provide didactics to residents with access to computers to access, setup, and review secure messaging interface/patient portal</li> <li>• Provide clear expectations for response time (~2 business days)</li> <li>• Discuss documentation and supervisor review requirements</li> <li>• Discourage use of non-secure personal email</li> </ul>
Telephone “clinics”	<ul style="list-style-type: none"> <li>• Encourage proactive, scheduled calls for short-interval follow-up on new medications, diagnostics, and evolving disease states (e.g., in 1–3 months)</li> <li>• Schedule time on clinic days when “face-to-face” visits are also scheduled</li> <li>• Review policies and expectations around staffing and documentation of cases</li> </ul>

(continued)

**Table 3** (continued)

Nontraditional care method	Pearls
Clinical video telehealth (CVT)	<ul style="list-style-type: none"> <li>• Seek opportunities for residents to participate in CVT, either as a care provider co-located with the attending, or as a telepresenter co-located with the patient</li> <li>• Ensure minimum competencies and training in equipment and emergency procedures are reviewed prior</li> </ul>
Shared medical appointments	<ul style="list-style-type: none"> <li>• Focusing on certain disease states, such as diabetes, metabolic syndrome, obesity, pain, congestive heart failure, chronic obstructive pulmonary disease</li> <li>• Encourage interprofessional team visits, with medicine residents taking a portion of presentation</li> </ul>
Nurse “chair visits”	<ul style="list-style-type: none"> <li>• Develop opportunities for residents to work with assigned nurse and collaborate in care for minor/urgent issues</li> <li>• Provide structure for residents to schedule follow-up visits between patients and nurses to obtain needed data and monitor response to treatment</li> </ul>

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# Chapter 25

## Federally Qualified Health Centers



Magni Hamso and Shwetha Iyer

### Introduction

Federally Qualified Health Centers (FQHCs) are part of the nation's medical safety net, with 1,300 unique FQHCs serving over 20 million patients annually in underserved, resource-poor areas across the United States. FQHCs are authorized through the Centers for Medicare and Medicaid Services (CMS) and receive enhanced payments through CMS to offset the costs of caring for their largely uninsured and underinsured patients [1, 2]. Although the missions of FQHCs and internal medicine residency programs largely overlap—providing quality care to underserved populations—few collaborations between FQHCs and internal medicine residency programs exist [3].

It is well known that physicians tend to stay within a 100-mile radius of their training site and that residents who work at an FQHC during their training are more likely to continue to care for the underserved on graduation [4–8]. Over the last few decades, there have been several attempts to increase postgraduate training programs at FQHCs largely to improve the diversity and distribution of the primary care physician workforce—through the Area Health Education Center program established in 1972 and funded by the Health Services Resource Administration and later through the Teaching Health Center Graduate Medical Education program funded

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under the Patient Protection and Affordable Care Act [9–11]. Even so, few residency programs have formal relationships with FQHCs; in fact, per a 2016 review of ACGME and CMS data, only four percent of family medicine and five percent of internal medicine training sites were at community-based health clinics [3].

There are several barriers cited in the literature and in our experience in the development and maintenance of affiliations between residency programs and FQHCs that are important to review when considering a partnership. Nevertheless, FQHCs and residency training programs share common ground around the importance of service to the community and clinical quality, making this a potentially fruitful relationship for both parties. In this chapter, we review the benefits and challenges of these partnerships along with some potential solutions. We also discuss several FQHC-residency partnerships that have proven to be successful.

## Learning Objectives

1. Explore the benefits of a partnership, from the perspective of both the residency program and the FQHC.
2. Review the challenges of establishing and maintaining a partnership between a residency program and an FQHC.
3. Outline the key steps necessary for developing a successful partnership between a residency program and a FQHC.
4. Review several different examples of partnerships between a residency program and a FQHC.

## Outline

- Benefits of Collaboration
  - Benefits to Residency
    - Diversity
    - Social Determinants of Health
    - Patient-Centered Medical Home
    - Cost-Conscious Care
  - Benefits to FQHC
- Challenges of Collaboration
  - Administration and Governance
  - Funding
  - Unique Patient Population and Clinic Logistics

- Steps Toward Partnership
- Partnership Example

## **Benefits**

### ***Benefits for Residency***

#### **Diverse Patient Panel**

FQHC providers typically care for patients presenting with a wide spectrum of ailments and psychosocial issues. Health center patients are nearly three times more likely to seek care for serious and chronic conditions as compared to patients in care with private providers. FQHC physicians are often on the front lines screening for and providing mental health care, given the prevalence of mental illness in this population and the paucity of psychologists and psychiatrists in underserved areas [12]. FQHCs can thus expose residents to different medical and behavioral health problems, giving them a well-rounded education and preparing them for future practice [13].

FQHCs take care of patients in both urban and rural underserved areas and often have patient panels that span from the healthy working poor to the chronically ill elderly on multiple medications. Although less economically diverse (most FQHCs care for patients that live at or near the federal poverty level), FQHC patients tend to be very racially and ethnically diverse, often comprising recent immigrants and refugees in addition to long-established minority communities [2, 12, 14]. This diversity allows residents to learn about different cultures and backgrounds and practice cultural humility within their continuity clinics [15].

#### **Social Determinants of Health**

Because FQHCs care for largely poor and underserved populations, many of their patients are particularly affected by the social determinants of health. Residents have the opportunity to learn to care for patients who are affected by food insecurity, unstable housing, incarceration histories, and lack of health insurance. Many FQHC patients work multiple minimum-wage jobs and still struggle to make ends meet, while others deal with mental illness and substance use. Although these psychosocial issues might make providing basic primary care more complicated, it is a great real-world experience for residents to learn about the social determinants of health and how to help their patients navigate social services as well as the medical system. Most FQHCs are closely connected to other community organizations such as food banks, shelters, job training programs, and substance use treatment programs that

residencies can take advantage of, with easy access to community partners who can help teach residents about their resources and the biopsychosocial approach to health [12, 14–17].

### **Patient-Centered Medical Home**

FQHCs are leaders in the patient-centered medical home (PCMH) movement in many parts of the country. Many also provide integrated behavioral health and medical care and include social workers, mental health counselors, and case managers on their primary care teams. FQHCs also employ many advance practice clinicians, who can help manage residents' panels when they are on inpatient rotations or who can refer their more complicated patients to the internal medicine residents for care [10, 15, 18]. FQHCs can thus facilitate primary care training in interdisciplinary teams that will prepare residents for real-world primary care and help them succeed in caring for psychosocially and medically complex populations in the future.

Many FQHCs are also starting to incorporate hepatitis C and HIV treatment into their chronic disease management. In fact, part of the National HIV/AIDS Strategy is to expand the number of FQHCs that provide HIV care, in order to make it easier for people living with HIV/AIDS to obtain quality and culturally appropriate care in their own communities [19, 20]. Residency programs can take advantage of these unique training opportunities offered at FQHCs.

### **High Value Care**

Another benefit of incorporating internal medicine residency programs into FQHCs includes exposing residents to cost-conscious care. Many FQHC patients are uninsured. Although FQHCs offer care on a federally set sliding scale, costs quickly add up and residents need to think about which tests are essential to making a diagnosis or monitoring a chronic disease. Similarly, FQHCs have access to a low-cost federal formulary of medications, but as patients often struggle to afford multiple medications, residents do need to think critically about which medications are truly crucial for that patient's care [1]. There is increasing evidence that residents who train in a cost-conscious setting will become cost-conscious providers [21]. Although in recent years cost-conscious care has received significant attention through the American Board of Internal Medicine's Choosing Wisely campaign, attending physicians and residents continue to struggle with deciding which diagnostic tests are of high value [22]. Ambulatory training at an FQHC will allow residents to apply the principles of the Choosing Wisely campaign in their continuity clinic and to obtain expertise in high value care.

## ***Benefits for FQHC***

In addition to internal medicine training programs benefiting from having their ambulatory training at FQHCs, FQHCs can benefit from partnerships with academic medical centers. Many FQHCs struggle with regular turnover in their workforce, often because of lower pay, lack of access to quality schools, inadequate housing, and difficulty with spousal employment. Turnover has also been blamed on excessive workload and issues regarding autonomy and work control often present in community health center work [23–25]. Partnerships with academic medical centers guarantee a stable workforce through supervising attending physicians and three classes of residents that are replenished each year. Moreover, residents who train at FQHCs often continue to care for underserved patients in the area after graduation [4–8], and FQHCs have the opportunity to recruit and retain them at their clinic. As well, residents are required to participate in quality improvement experiences as part of their training [27]; this is often work that FQHCs want to engage in but do not have the time or resources to implement [28]. Although FQHCs emphasize patient volume and revenue more than a residency training program would, having residents at an FQHC can facilitate these financial goals as well. As residents progress through their training and can see more patients per session, they can together see more patients than their supervising physicians could on their own. This can allow FQHCs to bring in more revenue or at least offset the cost of accommodating more junior residents who need more time per encounter [29].

## **Challenges**

Significant benefits exist in partnerships between residency programs and FQHCs, especially when it comes to learning opportunities for residents and retaining and expanding the primary care physician workforce. That said, there are real challenges that can prevent successful, long-term relationships if not appropriately addressed.

## ***Administration and Governance***

The biggest barriers to a successful FQHC-residency partnership center around governance, administration, and funding. In fact, nearly 30% of program directors cite governance (adhering to the rules and regulations of the supervising body) as a significant barrier to a successful working relationship between FQHCs and residency programs [30]. Residency programs are subject to the rules and requirements

of the Accreditation Council for Graduate Medical Education (ACGME) and the Resident Review Committee (RRC) and focus on education, while FQHCs are governed by a board of directors and focus on delivering primary care. The different priorities of the bodies governing the residency and the FQHC can make it difficult to meet the goals and needs of the respective organizations.

While governance is the most frequently mentioned barrier to a successful partnership between residency programs and FQHCs, leadership is mentioned as the most important barrier to initially forming a partnership. Residency program directors may fail to initiate an affiliation with an FQHC due to a lack of knowledge about FQHC-residency program partnerships. They also often have misconceptions about disorganization and poor management at community health clinics and are skeptical about the quality of teaching provided by health center physicians [16, 30]. Poor communication between the residency program director and the FQHC can exacerbate this potential barrier [30].

Administrative complexity can also make collaboration difficult. FQHCs have to make sure that there are enough support staff to deal with large fluctuations in the number of providers and be flexible with frequently changing resident schedules. The discontinuity of residency clinic scheduling directly challenges the provision of continuity of care provided at the FQHC. Additionally, the frequent cycles of credentialing and training of new physicians associated with residency programs can lead to extra administrative burdens not usually dealt with by FQHCs. Ultimately for a partnership to be successful, there needs to be a balance between the clinic's needs and the residency's needs and an understanding from both programs' leadership about how to these needs simultaneously address [30, 31].

## ***Funding***

The issue of funding (or lack thereof) is another crucial barrier to collaboration between FQHCs and a residency programs. Underfunding on both sides is common and each organization works to protect its own funding streams and often cannot absorb costs that are not directly associated with its primary mission. Each entity may feel as though the other has more money to help pay for salaries and other costs [16]. Moreover, there are considerable costs associated with affiliation that are not reimbursed, such as the increased administrative requirements of residency training (including additional support staff and paying the salary of the supervising physician) as well as potentially decreased productivity. Both sides do agree that the indirect costs of providing residency training are not adequately accounted for in the current graduate medical education reimbursement model. Studies cite anywhere from a cost of \$7,000–\$14,000 per resident per year to a profit of about \$1,000 per resident over expenses, depending on the availability of volunteer preceptors, FQHC contributions, and the number of patients seen by residents [29]. There are creative ways to bring down these costs, including affiliating with a hospital (inpatient

revenue from providers can contribute to residency training and hospitals can offset some costs lost to precepting) and increasing residents' productivity up to the limit of RRC standards. However, it is essential that both parties come together to negotiate how best to address funding at the initiation of the partnership.

## *Logistics*

The logistics of practicing at an independent FQHC can also make it a challenging primary care experience for residents. It is often difficult for residents to follow up on test results, referrals, and clinical care when they are on rotations outside the clinic because of different electronic medical record (EMR) systems and the frequently complex multi-hospital referral systems used by FQHCs to accommodate their uninsured and underinsured patients [32]. Some residents find the different EMRs and clinic systems that they must navigate to have their clinic at a location separate from the hospital a potential source of burnout. Residents also complain about inefficiencies in the clinic system, such as triage, the medication refill process, paperwork, and waiting times for referrals and studies [16, 32, 26]. However, most FQHCs find that despite these complaints by residents, recruitment, retention, and morale are high with an affiliation with a residency program, making the partnership a desirable one [31].

FQHCs also often struggle with high no-show rates, which can vary from as low as five percent to as high as 55% [33]. The low-income patients that FQHCs serve often have difficulty affording health-care costs even at the FQHC sliding scale price, struggle with transportation and childcare, and have trouble getting time off from work. Patients are also often scheduled months ahead of time, and too much time between scheduling an appointment and the appointment date can affect attendance rates [33, 34]. No-shows reduce provider productivity, increase costs, and ultimately prevent clinics from effectively serving their clientele by reducing their effective capacity [34]. FQHCs have to consider options in dealing with this high no-show rate, including overbooking and sending out patient reminders, especially as residents with unpredictable schedules are added to their workforce.

Unique logistical barriers to care at FQHCs also include the diversity of the patient population and the many languages spoken. In fact, according to recent national surveys, 63% of hospitals and 54% of general internal medicine physicians treat patients with limited English proficiency on a weekly basis, while 84% of FQHCs do so every day [35]. Some potential solutions for this issue include developing operating procedures to support language access, scheduling appointments to take into account the availability of language services, making telephone language service lines available in all exam rooms, providing periodic trainings on communication skills, and developing patient education materials and forms in languages other than English and at a low literacy level [35]. Language services, however, are expensive, estimated at just over \$4.00 per visit with a patient with limited English

proficiency or about 0.5% of the total cost of the visit [36]. While FQHCs often try to hire staff that is at least bilingual with the primary language of their patient population to cut down on interpreting services, this is not a possible requirement for residents—so the cost of interpretation services may go up with incorporating trainees into a FQHC.

## Steps Toward Partnership

As real benefits and challenges exist, it is important to highlight best practices when putting together these affiliations. Focus groups, consisting of practice administrators, medical directors, primary care association members, university faculty members, family medicine residency program directors, FQHC board members, and government representatives spanning ten states, have identified three ways to overcome barriers to successful affiliation: (1) a shared mission and vision of service and education; (2) new reimbursement streams that facilitate the shared mission, do not threaten existing funding streams, and account for the costs of outpatient training; and (3) clear communication of governance requirements and administrative roles [31].

First and foremost, there has to be a shared mission regarding service to the community and providing excellent clinical care to the population served by the health center. In-depth phone interviews with residency program directors, residents at the training sites, and health center administrators describe that the first and most critical aspect of creating a linkage is to determine whether training residents at a FQHC is consistent with the goals of the residency program. Next, an in-depth examination of the financial status of the residency is necessary; if financial barriers are identified, possible solutions need to be generated. These parallel steps must take place at the FQHC once an appropriate FQHC has been identified [16].

Next steps should include forming a joint FQHC and residency task force to devise a partnership plan. The members of this task force may include the residency program director, a FQHC executive or clinic medical director, the FQHC board of directors chairperson, a lawyer for the FQHC, and an administrator from either the residency program or the hospital. This group will need to outline the financial, service, educational, and legal responsibilities of the residency and the FQHC as the partnership is developed [16].

Introducing residents to the FQHC could begin with block rotations or participation in a community health project and eventually extend into longitudinal training experiences such as continuity clinic. Lastly, a joint strategic planning committee for ongoing monitoring and evaluation of this partnership is recommended [16]. See Fig. 1.

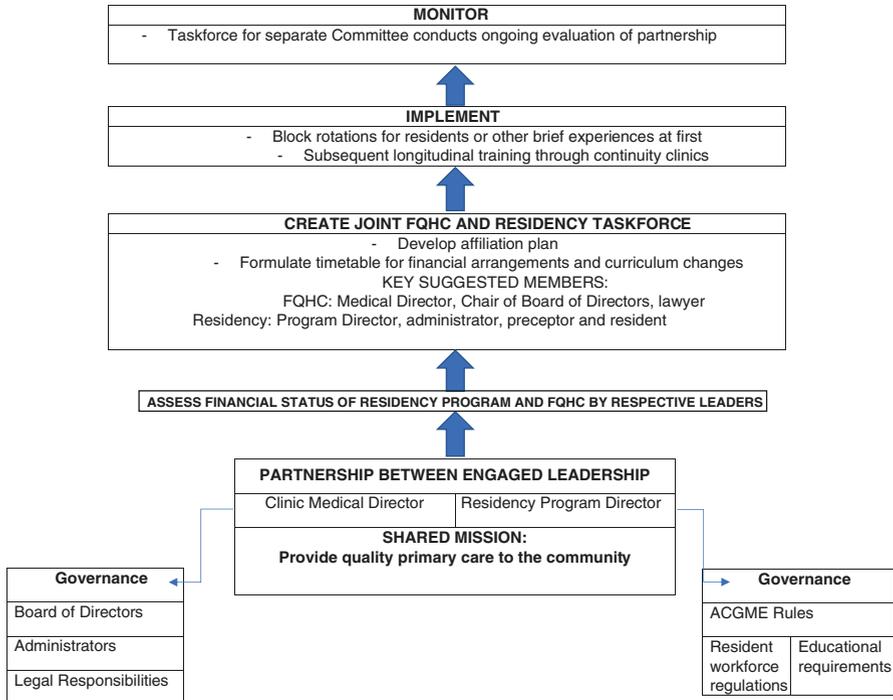


Fig. 1 Steps toward FQHC and residency program partnership

### Partnership Examples

There are several examples of successful FQHC and academic partnerships described in the literature [17, 23, 37, 38]. These FQHC-residency partnerships have been successful because the FQHC and residency program had a shared mission, communicated openly about their governing bodies’ priorities, and decided on joint funding streams from the beginning of their partnerships.

The Keck School of Medicine of the University of Southern California successfully merged their struggling residency training clinic with a local hospital and community health center in 2012, in order to forward their shared mission of caring for the underserved and meet the short- and long-term goals of each of these institutions. The residency program needed to increase its residents’ numbers of outpatient encounters in order to comply with ACGME training program requirements [27]. The local hospital needed to expand its referral base, and the community health center needed to improve its quality assurance activities and technological/EMR infrastructure. As a result of the collaboration, the residency program was able to recruit an increasingly competitive class of residents and started to meet ACGME

outpatient encounter requirements. The community health center obtained FQHC status, implemented an EMR, and expanded its patient volume. In turn, the local hospital began receiving more referrals for hospital-based specialty care and diagnostics. Although it took about 18 months to align the goals of all three institutions, the collaboration was successful because the institutions had a shared mission, and the leadership at each site was committed to making the collaboration happen and prioritized each institution's goals equally [23].

An internal medicine program at Norwalk Hospital in Connecticut developed a partnership with an FQHC in order to improve their residents' outpatient training and better serve the community. In exchange for moving all of their primary care services and outpatient training to the FQHC, Norwalk Hospital and the residency program helped the FQHC renovate its premises and subsidized the cost of internal medicine staff. The relationship was successful, expanding patient encounters and improving patient satisfaction, as well as reducing clinic staff turnover. Although it took two years to negotiate, the partnership worked because the leadership at both the hospital/residency program and the FQHC recognized their shared mission of caring for the community and were able to identify mutually beneficial outcomes from the partnership [38].

The Residency Program in Primary Care/Social Internal Medicine (PC/SIM) at Montefiore Medical Center has a long-standing successful partnership with a FQHC that demonstrates the multiple benefits a residency program can reap from such a partnership. Montefiore is a large academic hospital located in the Bronx, NY. It has a long-standing mission to deliver quality care to the underserved and opened the first hospital-based Department of Social Medicine in the country in the early 1980s. Montefiore partnered with a coalition of FQHCs and school-based health centers in order to help expand primary care access in the Bronx. The PC/SIM Residency Program specifically collaborated with the Comprehensive Health Care Center (CHCC), one of the FQHCs from this coalition, in the early 1990s. This relationship has been successful because of Montefiore's, PC/SIM's, and CHCC's shared mission of providing quality primary care to the Bronx community, a close working relationship between the programs' administrators, and Montefiore's willingness to financially back the collaboration.

In this example, 30 residents (ten residents per postgraduate year) see their own panel of patients longitudinally over the three years of residency under the supervision of faculty preceptors who also have patient panels at the FQHC. In general, full-time clinician educators provide direct patient care 60% of the time, supervise residents 20% of the time, and receive administrative and teaching time for the final 20% of their time. Their clinical time seeing patients provides the majority of their salary, with the Department of Family and Social Medicine together with the Department of Medicine cover teaching and administrative time. The medical director of the FQHCs a graduate of the internal medicine residency at Montefiore and works closely with the PC/SIM program directors to facilitate scheduling of residents and precepting sessions as well as to manage the budget for the clinic. This close relationship allows administrators from both programs to identify needs and

issues as they arise for both organizations and accommodate those needs in a collective manner. Residents usually see the ACGME recommended number of patients per year, which, as seen in the literature, facilitate keeping the costs of training low.

Residency program directors can teach around social determinants of health by partnering with FQHCs given the diverse and often marginalized populations in the surrounding community. As an example, at CHCC, residents receive excellent training in substance use disorders and graduate prepared to treat opioid use disorder with buprenorphine, have the opportunity to care for new immigrants and asylum seekers, and obtain experience caring for patients with incarceration histories through a direct-access clinic for individuals getting out of jail or prison. Residents also have the opportunity to manage a panel of HIV positive patients and to treat hepatitis C. Residents obtain significant experience managing complicated mental illness in the primary care setting, together with a staff psychiatrist and a robust behavioral health team. Several specialty access clinics provide excellent care for these populations and are often a result of resident-led projects that seek to improve the health of these populations while providing skills that make residents strong candidates for future jobs after training.

The quality of precepting is strong at CHCC and many of the faculty are graduates of the PC/SIM program and share the mission of providing excellent, high value, low-cost care to the clinic's underserved population. The affiliation between Montefiore, CHCC, and PC/SIM highlights the importance of having a shared mission between the organizations and establishing a strong and continued partnership with leadership of all groups. It also illustrates the many training opportunities a long-standing partnership with a FQHC can allow. This affiliation is fortunate to have financial support from the larger academic medical center.

Other residency programs, unfortunately, do not have a large hospital system to help back the cost of a merger with an FQHC. The University of Washington Boise Internal Medicine Residency Program (BIMR) at the Veteran Affairs (VA) hospital in Boise, Idaho, which several years ago transitioned from a successful 1-year track to a full 3-year residency program, recently developed a partnership with an FQHC without the financial support of a large hospital. In order to promote volunteerism and to expand its residents' primary care experiences beyond those available at the VA, residents and faculty in 2012 started volunteering at the local FQHC Terry Reilly Health Services (TRHS), helping family medicine physicians and advanced practice clinicians with medically complex patients through a once weekly evening internal medicine consult clinic. In 2014, with the support of the Hindson Foundation, a foundation committed to expanding primary care training opportunities in Idaho, BIMR and TRHS hired an internist to supervise residents at the FQHC. Instead of residents seeing patients in the evening, they now spend two sessions during each ambulatory block at TRHS, seeing a combination of internal medicine consults and urgent care. Residents in this way have the opportunity to care for populations they do not regularly see at the VA, including recent immigrants, people who are homeless, patients with incarceration histories, women, and the uninsured working poor. While at the FQHC, residents also engage in a journal club focused on community

medicine and public health. Three residents with special interest in underserved populations and primary care also have their continuity clinic at TRHS.

The partnership between TRHS and BIMR has been successful because of supportive leadership at both TRHS and BIMR, a dedicated clinician at TRHS who also spends time teaching at BIMR alongside residency faculty (allowing her more insight into the overall BIMR curriculum), TRHS' willingness to hire another internist, selection of motivated and strong residents for continuity clinic, and foundation support for the start-up costs of implementing a teaching clinic at the FQHC. Even with the foundation's support, the main challenge of this partnership has been balancing the FQHC's need to maximize patient volume and trainees' need for increased time per visit. That said, over 2 years, the support of the Hindson Foundation has slowly decreased, as the program has become increasingly self-sustainable. For the program to expand further and incorporate additional residents or become a full primary care track, however, the FQHC in partnership with the residency will need to obtain additional funding sources to cover the cost of the residents' salaries while they are in the outpatient setting.

## Conclusion

Although there are challenges to establishing a partnership between FQHCs and residency programs, there are many benefits. Not only can residents receive superb outpatient medical training at FQHCs, but they will also obtain experiences managing a medically and psychosocially diverse patient population, have the opportunity to grapple with the social determinants of health, learn how to work in an interdisciplinary team, and practice cost-conscious care. FQHCs benefit by having a stable workforce and by having the opportunity to recruit well-trained, prepared physicians dedicated to caring for the underserved. In order to create a successful partnership, it is vital to have a shared mission and vision of service and education, explore reimbursement streams that facilitate the shared mission and account for the costs of outpatient training, understand governance requirements, and clearly delineate administrative tasks and roles for both the residency program and the FQHC.

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