

TECHNOLOGY: PART I

CLINICAL INFORMATION INTEROPERABILITY: HSPC, CIIC, AND THE ROAD AHEAD

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As general internists, we have likely experienced the challenges of caring for patients seen in multiple health systems with multiple medical records. Obtaining information from each of these disparate systems can be frustrating, time consuming, and administratively challenging, and as a result patient care sometimes suffers. To that end, fully integrated electronic health record cross-platform interoperability, herein referred to as “interoperability,” is an essential substrate for delivery of safe clinical care, innovation in health care, quality improvement, and research. Although, there has been progress, interoperability remains elusive, and, in most cases, data do not flow from system to system. This article will describe the recent developments in interoperability and challenges facing interoperability.

In the engineering and IT industries, data and communication standards have been universally accepted and are consistently implemented across vendors, while the healthcare industry lags behind.¹ Consistency of structured health record data capture in coded form (e.g., International Classification of Diseases) and data modeling (e.g., unifying, uniform representation of blood pressure measurement with associated details regarding units of measurement, body location, etc.) across clinical domains is not yet fully functional.^{1,2} Importantly, no single methodology for data modeling has been accepted across the healthcare industry.

The Healthcare Services Platform Consortium (HSPC) and the Health Level 7 (HL7) Clinical Information Interoperability Council (CIIC), have come together to form a new organization and convened a meeting of clinical societies, academics, and government representatives with the goal of achieving full interoperability for healthcare data.³ Technical and clinical representatives included the American Society of Clinical Oncology (ASCO), the American College of Obstetricians and Gynecologists (ACOG), the American College of Physicians (ACP), the American College of Cardiology (ACC), the American Medical Association (AMA), the American Academy of Family Physicians (AAFP), nursing, quality measurement, federal government (Office of the National Coordinator for Health Information Technology [ONC], Agency for Healthcare Research and Quality [AHRQ], US Food and Drug Administration [FDA]), and many vendors. This meeting was an extension of the work begun in the clinicians' track of the HL7 Partners in Interoperability meetings. The purpose of the CIIC is to obtain stakeholder commitment to work together to develop and use common data models for clinical data elements.

Two keynote presentations from Patti Brennan, PhD, RN, director of the National Library of Medicine (NLM) and Alexandra Mugge, deputy director and interim chief

continued on page 14

CONTENTS

1. Technology: Part I	1
2. From the Editor	2
3. President's Column.....	3
4. Technology: Part II	4
5. Medical Education	6
6. Perspective	8
7. Morning Report.....	10
8. Health Policy	12

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FROM THE EDITOR

AUTUMN LEAVES

Joseph Conigliaro, MD, MPH, Editor in Chief, *SGIM Forum*

"Autumn is a second spring when every leaf is a flower."

—Albert Camus

It's autumn again! SGIM Regions are gearing up for their individual meetings, workshop requests for the national meeting have just passed, and we are lining up our abstract and clinical vignette submissions. The fall season has always been a busy time for our Division. In addition to working on our contributions to SGIM and other society meetings, our division members are submitting grants, rolling out new curricula, and getting ready for another residency recruitment season. This month's issue features an article by Dr. Christina Mosher and her colleagues on their #ProudtobeGIM efforts at UT Southwestern Medical Center in Dallas, Texas. As you know, the #ProudtobeGIM program encourages medical students and residents to pursue GIM as a career. Guides and resources are provided through SGIM that help educators communicate what it means to be a general internist through local events and educational activities. As in many other Divisions, DGIM faculty members at the Zucker School of Medicine have also diligently worked to accurately reflect the day-to-day activities of general internists, including both the interesting and routine aspects to our residents and students. We have seen some fruits of our efforts with an increase in the number of residents graduating to generalist careers and in several cases pursuing academic jobs in the way of fellowships and faculty positions. Getting the word out is important work, and the #ProudtobeGIM campaign helps us have an accurate and coherent message. We, as members of this organization, need to all be active in this role.

Dr. Giselle Corbie-Smith, SGIM president, continues the dialogue about the SGIM Mission and Vision by discussing the organizational core competencies needed for SGIM to achieve its strategic goals. She encourages members to share their views and ideas, taken from their diverse experiences and roles, so that we have a robust framework to move forward. Please heed her call.

This month's *Forum* also has a variety of articles dealing with important clinical, policy, and educational efforts by our members. One particular piece deals with the MOC process for ABIM. Dr. Deborah Kwolek, chair of the SGIM MOC taskforce, reports on a recent meeting hosted by the ABIM to discuss the MOC process. The article nicely outlines the current methods for continued board certification and the rationale behind it. In

continued on page 15

ORGANIZATIONAL COMPETENCIES TO ACHIEVE A “JUST SYSTEM OF CARE”

Giselle Corbie-Smith, MD, MSC, President, SGIM

What knowledge, skills, abilities, and behaviors do we at SGIM have (or need) to move us closer to our vision? For me, this remains an open question. I'm using this column to stimulate a discussion to contemplate what are SGIM's core competencies, what we may need to develop them, and how to incorporate them in our work.



What organizational core competencies do we need to achieve our vision of a “just system of care”? What knowledge, skills, abilities, and behaviors do we at SGIM have (or need) to move us closer to our vision? For me, this remains an open question. I’m using this column to stimulate a discussion to contemplate what are SGIM’s core competencies, what we may need to develop them, and how to incorporate them in our work. This year, council and leaders within SGIM have done a lot of introspection on how we achieve our vision of a just system of care in which everyone can achieve optimal health. We have used this time to think deeply about our organizational vision, mission, and values (why we exist); have set four strategic goals (*what* we need to do to achieve our mission) and continue to work on *how* we can achieve our goals. This feels like the right time to also consider our core competencies.

We need to think about what we as an organization need to do on an ongoing and systemic basis that enables us to achieve our mission. In this context, *organizational competencies* are the combination of required skills, necessary information, appropriate performance measures, and the organizational culture needed to achieve our mission and move us closer to our ultimate vision of a just system of care in which all people can achieve optimal health. We need to identify what SGIM already does well, and what organizational competencies we may need to develop.

In thinking about this, I looked at a variety of sources, most of which dealt with individual skills and abilities, but may provide food for thought as we contemplate organizational competencies. There are many other definitions and models that you may be familiar with and would consider, and I ask you please to share those and your thoughts about them with us.

We are all familiar with the well-developed individual
continued on page 15

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The SGIM Forum, the official newsletter of the Society of General Internal Medicine, is a monthly publication that offers articles, essays, thought-pieces, and editorials that reflect on healthcare trends, report on Society activities, and air important issues in general internal medicine and the healthcare system at large. The mission of the Forum is to inspire, inform, and connect—both SGIM members and those interested in general internal medicine (clinical care, medical education, research, and health policy). Unless specifically noted, the views expressed in the Forum do not represent the official position of SGIM. Articles are selected or solicited based on topical interest, clarity of writing, and potential to engage the readership. The Editorial staff welcomes suggestions from the readership. Readers may contact the Editor, Managing Editor, or Associate Editors with comments, ideas, controversies, or potential articles. This news magazine is published by Springer. The SGIM Forum template was created by Howard Petlack.

CLINICAL UPDATE IN CLINICAL INFORMATICS: PART III

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The Clinical Update series continues in *SGIM Forum*, covering clinical decision support (CDS) systems, with a focus on how the implementation of these systems impact clinical workflow and practitioners. Population health is also a focus of this article in the series.

Starting from the August 2018 issue of *SGIM Forum*, the previous two articles in this series were inspired by our live Clinical Update session at the 2018 SGIM Annual Meeting, summarizing clinical informatics papers published in the year prior the meeting that were relevant for general internists.^{1,2} The complete methods for journal and article selection are described in the August 2018 article.¹ The structure of this article will follow the previous two in this series, starting with a vignette and subsequent discussion.

Case Vignette #1

JD is a 54-year-old female with hypertension, type 2 diabetes, and moderate persistent asthma. Her medications include hydrochlorothiazide, atenolol, insulin, albuterol, and fluticasone MDI. She presents with persistent headaches, dyspnea, and polyuria. Her temperature is 98.9°F, pulse 88, respirations 32, blood pressure 152/94 mmHg, pulse oximetry 95% on room air. Physical exam is notable for expiratory wheezes with bibasilar crackles and lower extremity pitting edema. Fingerstick glucose (non-fasting) is 300 mg/dL, and urinalysis shows 2+ ketones and glucose of 500.

Clinical Decision Support Systems

The vignette describes a common clinical scenario of a patient who presents with multiple chronic conditions, or multimorbidity, which is an increasingly prevalent and challenging condition due to potentially interacting or contradicting recommendations for each condition. This leaves the physician frequently in a difficult position when treatment of one condition can significantly impact the others.

Clinical decision support systems offer the potential to aid clinicians in the practice of evidence-based medicine with the promise of providing enhanced patient

safety and quality of care.³ However, many CDS applications exist, with a variety of features, implementations, and effectiveness. Frequently, unintended consequences are alert fatigue and nonadherence to evidence-based guidelines on which these CDS systems are based.⁴ Bates, et. al., described in a seminal paper on CDS systems that a properly designed CDS system should alert a clinician about an issue related to a given patient that is “important to remember but easy to forget.”⁵ Furthermore, Campbell proposed the five rights of CDS:

1. the right information presented,
2. to the right person,
3. in the right interventional format,
4. through the right channel, and
5. at the right time in the workflow.⁶

For example, a clinical alert should trigger only if it would change the provider’s decision, such as when prescribing a medication. The alert should present information in a meaningful way to the provider before the order is completed and in a manner that allows for the appropriate action to be done efficiently.

Kassakian, et al., reported on common malfunctions in CDS alerts.⁴ In an analysis of a commercial electronic health record, four common categories of CDS errors were identified:

1. medication dictionary errors,
2. seasonal alerts (e.g., influenza vaccine recommendations),
3. database structure errors, and
4. edits performed on the base alert (e.g., to customize the presentation for a specific specialty or workflow).

Solutions for most of these error types focused on sociotechnical or human factors, such as governance and knowledge management. These concepts were echoed by Yoshida et al. in their analysis of knowledge management in an institutionally-developed electronic record system and a commercial system.⁷

continued on page 5

Discussion

The primary goal of CDS systems is to improve patient safety and quality of care by supporting evidence-based decision making at the point of care.³ Recent studies of CDS applications focus on sociotechnical aspects of CDS, such as alert fatigue and provider burnout, rather than solely the mechanics of CDS systems.⁸ In order to mitigate barriers in design and implementation, careful design and governance are important to guide developers on important and clinically relevant components of CDS systems.

Traditional approaches applying CDS as a direct translation of evidence-based medicine may have shortcomings for heterogeneous populations, such as patients like JD who have multimorbidity. Data-driven approaches, utilizing large data sets, analytic approaches, and drawing from current medical knowledge could inform the management of such populations. Such data-driven approaches are further explored in the next section on population health.

Case Vignette #2

JS is a 21-year-old man presenting with a cough for one week. He has fever, chills, malaise, myalgias and a 5-pound weight loss since his routine visit three months ago. Of note, he recently traveled to Cancun for a destination wedding. He reports that “the bachelor party was epic.” Also, you have seen 5 patients today with nearly identical symptoms (although without the party history).

Population Health

This patient presents with an acute illness with a possible exposure to an infectious disease internationally. It is also possible that a localized infectious disease could be contributing, depending on the seasonal variation and other contextual features. This vignette illustrates an opportunity for information systems and public health surveillance to support point-of-care decision making and clinical

judgments. Additionally, the vignette offers a potential application of population health integrated into routine clinical workflow.

Kindig and Stoddart define *population health* as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group.”⁸ Population health systems provide cross-cutting, chronic disease and health promotion expertise at the point of care. Computerized systems facilitate management of medical information and population health data, which is illustrated by the notion of *doubling time* of medical information. Densen describes the exponential increases in medical knowledge, estimating that the rate of growth of knowledge was once every fifty years in 1950, but will be once every 73 days by 2020.⁹ This means that medical residents graduating in 2020 will have experienced four sets of information doubling during their seven or more years of medical school and residency. Consequently, combining data from a variety of sources, including electronic health records, with data analytics has the potential to revolutionize the way that a population’s health is managed.

Some studies reviewed demonstrated positive effects of implementing population health systems. Kooij, et al., reviewed population health technology interventions, showing demonstratable improvements in chronic disease management in home care settings but acknowledged that the findings were mixed and difficult to reproduce in the literature.¹¹ Also in home care, Radhakrishnan, et al., were able to apply visual data representation techniques to homebound elderly patients to identify which patients were at higher risk of medical complications such as falls.¹² With regards to breast cancer management, Finkelstein et al. showed that using a coordinated management system was better able to link providers and higher-risk patients with shared decision making tools.¹³

The variety of such population health tools are also rapidly expanding, through academic, industry and other initiatives and collaborations. Roosan, et al., demonstrated an application of these data analytic approaches to provide mathematical predictions of outbreaks, as well as provide clinicians with a visual representation of the data so that it could be easily actionable.¹⁴

Discussion

Infectious disease surveillance is a promising application of population health informatics, applicable in the vignette presented. The initial impression would be that this patient simply has influenza or perhaps an intestinal viral infection; however, less common but reemerging illnesses, such as Zika virus or Dengue fever, could be better detected with improved surveillance systems. In addition, local patterns and seasonal variations, could also be presented with the use of a data analytic and surveillance tools, thereby providing diagnostic and treatment support to the clinician.

Rapid collection and display of immense amounts of data and information in a meaningful way for clinicians could support individual patient care, guided by surveillance or predictions based on regional patterns of antibiotic resistance or data-driven treatment pathways. More broadly, population health information systems could aggregate local data to guide national interventions especially in scenarios of pandemics or bio-terrorism. However, there must be care in the interpretation of this information, given that there may be limitations in the data or inherent biases due to specific populations.

Medical information is exponentially growing, thus presenting a challenge for individual clinicians to evaluate all possibilities for patient and population health management. Through augmented health care, the conscientious applications of com-

continued on page 9

#PROUDTOBEGIM WEEK: AN INTERVENTION TO INCREASE TRAINEE GIM AWARENESS

Christina Mosher, MD; Anil N. Makam, MD, MAS; Ethan A. Halm, MD, MPH; Oanh Kieu Nguyen, MD, MAS

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General internists provide comprehensive care for patients with a wide spectrum of illness, serve as leaders in education, research, and innovation in academic medical centers and healthcare delivery systems, and will play an increasingly critical role in health care delivery in the United States over the next several decades.¹ Nonetheless, only about 20% of internal medicine residents plan to pursue a career in primary care or general medicine and an even lower proportion (2-10%) of medical students express interest in these careers.² Furthermore, over the last three decades, the national shortage of primary care physicians has continued to worsen. The Association of American Medical Colleges reports an impending shortage of over 90,000 primary care physicians by 2025.³

In 2015, the Society of General Internal Medicine launched the #ProudtobeGIM campaign to increase exposure, awareness, and enthusiasm for general internal medicine (GIM) career paths among medical students and residents. This nationwide campaign has funded pilot #ProudtobeGIM events at a total of 31 institutions over the past two years including at our institution, UT Southwestern Medical Center in Dallas, Texas, one of the largest medical schools in the country with more than 900 medical students. More than half of all physicians in the Dallas-Fort Worth metroplex, the fourth largest metropolitan area in the United States, are trained at UT Southwestern. Despite the enormity and influence of the medical school, the DFW region and Texas as a whole nonetheless faces a critical shortage of primary care physicians.⁴

As a #ProudtobeGIM grantee in 2017, we sought to implement and evaluate the effectiveness of our multifaceted week-long campaign on increasing awareness and interest in GIM graduate medical education training opportunities and career paths among medical students and internal medicine residents at UT Southwestern, and to identify key target areas for future interventions.

Program Development

To begin our program development, we convened a planning committee with members from key stakeholder groups, including medical students, internal medicine residents, and GIM fellows and faculty. Our stakeholders suggested the unifying theme for the weeklong lunchtime events of ‘Why I Love My Job as a General Internist’ to challenge existing student perceptions of primary care as being more stressful and less fulfilling than other subspecialties. Because we anticipated a minimum of 50 attendees per day based on our student and resident stakeholders’ estimates, we sought and obtained additional financial and administrative support from both our local Division of GIM and internal medicine residency program to provide free lunch. The \$2,500 added support from these two sources, in combination with the \$1,000 #ProudtobeGIM honorarium, was critical to the success of our campaign.

Social Media

The national #ProudtobeGIM committee called for the use of social media for both local and national dissemination of our local events. Our planning committee identified distinct preferences for various social media platforms varying by stage of training. Although Twitter is the preferred social media platform of the national #ProudtobeGIM campaign, only selected GIM faculty used Twitter. Medical students preferred other social media platforms including Facebook, Instagram and Snapchat, whereas most residents had minimal professional engagement with social media. We initially filed for and obtained a PokeStop to increase our event visibility to Pokemon GO players, but local use of Pokemon GO decreased substantially by the time of our campaign. E-mail was the most effective medium for reaching all trainees. We invited trainees to attend daily lunchtime events through e-mail and social media announcements

continued on page 7

via Facebook, Instagram, and Snapchat.

#ProudtobeGIM Events

We held five consecutive lunch sessions organized around the theme “Why I Love My Job as a General Internist,” with a 10-minute TED-style talk and 30-minute panel Q&A session focused on a different GIM career phenotype each day, starting with an overview of the diversity of academic GIM phenotypes on day 1, followed by sessions focused on GIM leaders and innovators (day 2); GIM expert clinicians (day 3), GIM clinician-researchers (day 4), and GIM clinician-educators (day 5). The TED-style talks were given by a different, featured faculty member each day and centered around that faculty member’s personal story and motivations for selecting his/her GIM career path. The panel consisted of 3-4 faculty members representing the featured GIM phenotype. Audience members participated in the Q&A by submitting written questions to the panel during each session. Trainees had opportunities before and after the event to mingle with invited speakers and panel discussants, and to make use of our social media photo booth.

We also circulated a sign-up sheet each day for participation in our one-on-one GIM mentoring program: Career Conversations Over Coffee. After the #ProudtobeGIM week, we matched mentees with mentors by career interest, sent an introductory e-mail, and asked each dyad to schedule an initial in-person meeting at their convenience.

Program Evaluation

We had between 80-90 attendees during the first two days, when residents received explicit permission to attend in lieu of their usual noon conference, and consistently had about 50 attendees over the remaining three days, without a drop-off in attendance. Thematic analysis of written question slips submitted by audience members during the Q&A

elicited 5 distinct themes that we found that trainees were most interested in learning more about:

1. how GIM was distinct from other primary care fields, particularly family medicine, and whether similar academic career opportunities were available outside of GIM;
2. GIM job satisfaction, especially given media coverage on physician workload and burnout;
3. balancing diverse professional responsibilities—the diversity of potential responsibilities in a GIM career path was both attractive and daunting to trainees;
4. fair compensation compared to other subspecialties; and
5. opportunities for post-residency training, particularly among trainees interested in non-traditional career paths in management, research, health information technology, and innovation.

After the week of events, 30 mentees had follow-up, one-on-one career discussion meetings with 34 mentors (some mentees met with more than one mentor per their identified career interests). Of these, 60% of trainees and 67% of mentors responded to an online survey to evaluate their experience. Most trainee respondents were medical students (88%) who expressed interest in clinician-educator (44%) or clinically oriented (44%) career paths. Mentees reported most commonly discussing the scope of clinical responsibilities (87%), work-life harmony (87%), and job satisfaction/burnout with mentors (73%), consistent with topics that were most frequently raised during the panel Q&A sessions. Less than half of mentee respondents (47%) were aware of GIM career paths before our #ProudtobeGIM week; after the events, 100% were aware ($p < 0.05$). Mentor respondents were predominantly clinician-educators (57%), reflecting the expressed career interests of matched mentees, and reported similar topics of

discussion. All mentors found their one-time meeting to be a fulfilling mentorship experience, and many expressed interest in ongoing, longitudinal participation through free response comments.

Discussion

Overall, our inaugural #ProudtobeGIM week at UT Southwestern was well-attended, generated insightful discussion, and was successful in improving awareness of academic GIM careers among trainees. An unanticipated additional benefit was a renewed sense of enthusiasm, pride, and community among GIM faculty and staff, who also attended daily events to learn about colleagues’ career paths, excitedly brandished #ProudtobeGIM pens, and pinned #ProudtobeGIM buttons to their white coats. Many asked members of the planning committee if #ProudtobeGIM would become an annual tradition at the medical school.

To our knowledge, the approach promulgated by the national #ProudtobeGIM campaign represents an innovative catalyst for increasing GIM awareness and interest among trainees. However, coupling #ProudtobeGIM with longitudinal interventions, such as the development of primary care curricula, is likely needed to meaningfully influence trainees’ career preferences towards primary care.⁵ Although implementing a new student curriculum may be out of reach for most institutions in the short term, programs could consider other longitudinal strategies such as appointing and supporting a standing #ProudtobeGIM champion or committee; convening GIM student and/or resident interest groups with the guidance of a GIM faculty advisor; and increasing ongoing visibility and exposure to academic GIM faculty among trainees in other forums outside of a one-time #ProudtobeGIM event. To sustain such a local campaign would require ongoing financial support from local

continued on page 13

THE STANDARDIZED PATIENT WILL SEE YOU NOW

Joseph deBettencourt

Mr. deBettencourt (Joseph_b_deBettencourt@rush.edu) is a writer, actor, and current second-year medical student at Rush Medical College in Chicago.

“How were you hoping I would feel as your patient?”

This was the first question I asked a first-year medical student after her simulated patient encounter. As a standardized patient (SP), it was my job to act out a healthcare scenario and facilitate a conversation about it with the medical student afterwards. As we talked about the encounter, I was taking my own notes because now, two years later, I am the first-year medical student in “Mock Exam Room A.”

SPs were first incorporated into medical education in the 1960s when Dr. Howard S. Barrows, a neurologist at the University of Southern California, sought a way to expose his students to a wide variety of patients.¹ Since then, it has become a broad tool that teaches clinical reasoning, and general communication skills.² SPs have become an integral part of medical education; it is even part the United States Medical Licensing Exam.³ SPs, who are often working actors, perform simulated activities that allow trainees the opportunity to practice communication and clinical skills in a safe, lower stakes environment. My time as an SP gave me the unique chance to think purposefully about what I would do differently. My most valuable lessons, however, came from the experience of being the patient in these encounters.

As an SP, I had to portray different illnesses and patient personalities. That part of the job was no different than any acting experience. What was unique was keeping track of your feelings and why you were feeling them. If I reacted to something a student said, it was my job to make note of it and discuss it with them later. Each encounter was unique and I got the sense that the medical students were often uncomfortable with the unpredictability.

Talking with a stranger can be difficult, but we can learn to embrace it. Part of being an actor is meeting new people and being in unfamiliar situations. I learned through constant practice how to meet and quickly form a bond with others. In medicine, this communication has greater importance. Doctors need to be able to create trust *immediately*. The challenge is to take first-year medical students and make them comfortable talking with a stranger about personal issues.

In medical school, we are taught methods of communication from journal articles and given checklists for

discussing difficult topics. Following these checklists provides a roadmap for a situation, but they can't account for the lived experience of an individual. A person may react unexpectedly to a simple question. What do you use as a guide when the methods and checklists fall apart?

There was one encounter I performed frequently as an SP. The premise was this: discuss smoking cessation with a married 28-year-old male with a 10 pack-year history. I portrayed the 28-year-old, who was being seen for an annual physical. The patient was currently healthy but the medical student was charged with discussing smoking cessation. After a few weeks, I knew how the encounter typically went and I had formulated what I felt was the correct way for the medical student to handle the situation. I imagined being a medical student and decided I would know the right questions to ask, I would be very good at dealing with this sensitive topic. Then a first-year student came in, she was bubbly and kind but very disorganized. She initially asked about smoking, but quickly backed off after I resisted a little. She then began to ask questions about my life. While she was making a connection, she was not hitting any of the key topics of the case and had not collected the pertinent information about my condition. She was using up a lot of her time asking questions about my fictitious wedding. I was concerned she was going to have issues with time management.

I just got married as well,” she said.

“Congrats,” I replied.

“Are you thinking about kids?”

“Maybe, but not right now.”

“Your wife smokes as well, right?”

“Yes.” I said, taking a mental note that I should score her higher on the *Understood the impact of my condition on my life* section.

“She would probably have to quit smoking if you ever decided to have kids.”

“I guess so,” I said.

“Would you let her quit on her own?” She stared at me.

“I think couples can really help each other. If you quit smoking, it might make it easier for her when it came time to start having kids.”

continued on page 9

Her approach was manipulative; but, combined with her personality, it was effective. I don't know how she scored on her documentation or what her physician-educators told her, but I scored her very highly. She made me feel like I was a friend. She sat down with me, a stranger, and had an honest conversation.

Checklists and interview tools provide a framework for discussion and can help new learners develop their communication skills.⁴ Simultaneously, it is important to keep in mind how we want our patients to feel. It holds us accountable to them as humans, rather than just clients, and gives us a goal to aim for. While there is a desire to move medicine towards standardization and checklists,⁵ we have to remember that our well-validated methods are most

effective when they help us make a human connection. Checklists can build a strong foundation, but they are made stronger when we can use them, not just follow them.

How do I hope people will feel as my patient?

I want them to feel heard; I want them to feel ownership. I want to never stop learning how to better answer that question.

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TECHNOLOGY: PART II (continued from page 5)

puterized systems combined with human capabilities and insights, this should become a far less daunting task.

**For the full references list, please visit: <https://tinyurl.com/y7w8h3au>.

The final article in this series will focus on the use of mobile devices in both clinical care and research.

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Population Health Science Scholars Program

NYU School of Medicine's Population Health Science Scholars Program seeks applicants for a two-year post-doctoral Research Fellowship starting July 2019.

In this program, scholars will conduct mentored research with senior faculty who apply rigorous research methods to improve health outcomes and reduce health inequity. Formal research training is provided through coursework, leading to a Master of Science Degree in Clinical Investigation with a unique focus on healthcare delivery science. Coursework includes: clinical research methods, biostatistics, epidemiology, health services research methods, healthcare delivery science, medical informatics, grant writing, scientific integrity and the responsible conduct of research and an integrative seminar.

Scholars will be exposed to operational and clinical aspects of healthcare delivery through optional rotations with key hospital operational groups, opportunities to join relevant committees, and

discussions with healthcare leaders. They will have opportunities to engage in population health activities through collaboration with community-oriented clinical or research programs, the New York City Department of Health and Mental Hygiene, or other community-based organizations.

Stipend and tuition are provided along with an allowance for books, travel, and research expenses. Ideal candidates are physicians who have completed a clinical residency program.

This interdisciplinary program, which has academic homes in three departments (Population Health, Medicine, and Pediatrics), is supported by a National Research Services Award (NRSA, T32) from the Agency for Healthcare Research and Quality (AHRQ, 1T32HS026120-01).

<https://med.nyu.edu/pophealth/education/fellowship-training-programs/population-health-science-scholars-program>

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WEIGHING THE RISKS: ANTI-COAGULATION CHOICE FOR PULMONARY EMBOLISM IN OBESITY

Michele Fang, MD; Jennifer Morganroth** (** Discussant in italics)

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A 28-year-old obese woman presented with acute onset of shortness of breath and pleuritic chest tightness. She reported difficulty taking a full breath after walking up a flight of stairs and had difficulty working as a hairdresser.

The differential diagnosis for dyspnea is extensive and multifactorial with physiological, psychological, social, and environmental factors. Causes of dyspnea can be divided into two groups: respiratory dyspnea and cardiovascular dyspnea. Respiratory dyspnea can be caused by disorders of the central controller (chemoreceptors for pH, CO₂, and O₂ in the brain stem, cortical volitional, cortical behavioral), disorders of the ventilator pump (muscles, bones/joints in thorax, airways, peripheral nerves, pleura), and disorders of gas exchange (alveoli, pulmonary circulation). Patients with cardiovascular dyspnea may have coronary heart disease, congestive heart failure, valvular disorders, and pericardial diseases, as well as secondary causes such as anemia and deconditioning. In this patient, there is evidence of acute dyspnea that is affecting her activities of daily living. Further history and physical exam looking into respiratory and cardiac causes should be sought next.

The patient denies having any cardiac or pulmonary problems and had no limitations in her activity. She noted associated fatigue but denied fever, chills, sweats, lower extremity edema, PND, orthopnea, cough, or hemoptysis. She had not had similar symptoms in the past. The patient was taking an oral contraceptive (OCP). She denied recent air travel or long bus rides. The patient was a nonsmoker, non-drinker, and denies illicit drugs. The patient denies any family history of cardiac or pulmonary problems.

On initial presentation to the ED, the patient was tachycardic (pulse 130), tachypneic (respiratory rate 30), and had a BMI of 57.25 kg/m², but the patient was not hypoxic (spO₂ 95% on room air). Physical exam was

unremarkable except for tachycardia. The patient was in mild distress but was able to speak full sentences. The patient's lungs were clear to auscultation. The cardiac exam was unrevealing: there was no right ventricular heave, lower extremity edema, or JVD.

The patient had clear lungs and no history of chronic lung disease, making heart failure, pneumonia, pleural effusion, asthma and COPD exacerbation less likely. Although the patient was not hypoxic, she was clearly tachypneic and tachycardic. The patient's obesity and use of OCP (even without tobacco use) put her at risk for pulmonary embolism. Based on the Wells' Criteria, the patient met 4.5 points (tachycardia and clinical concern for PE as number one diagnosis), despite having no history of previous immobilization or surgery within four weeks, previous DVT/PE or signs of DVT, or hemoptysis. This placed the patient in moderate risk group with a 16.2% chance of having a pulmonary embolus in the Emergency Department.

Chest CT with contrast showed Pulmonary Embolus (PE) with occlusion of right pulmonary artery with low perfusion to the right lung. There was also a sub-segmental clot in the left lung. EKG showed sinus tachycardia without axis deviation or Right ventricle (RV) strain pattern. An echocardiogram showed mildly dilated right ventricle and moderately decreased RV systolic function, but normal Pulmonary artery systolic pressure (PASP). Labs were notable for a Beta Natriuretic Peptide (BNP) of 648 and negative troponins.

The patient was started on IV heparin following an IV bolus. The OCP was held. The Pulmonary Embolism Response Team (PERT) was consulted. They recommended anticoagulation therapy without lytics.

The patient met criteria for provoked (due to OCP use) submassive pulmonary embolism. She was normotensive, but had evidence of RV dysfunction. The American Heart Association guidelines recommend

continued on page 11

aggressive re-perfusion therapy (thrombolysis, catheter-directed thrombolysis and/or surgical embolectomy) for massive PE, where patients have sustained hypotension/shock and for patient's who meet the high-intermediate risk category at high concern for clinical deterioration. Due to the patient's clinical improvement, she met criteria for the low-risk intermediate category and anticoagulation therapy was pursued.

While LMWH is usually preferred over IV heparin (UFH) for initial anticoagulation due to lower risks of bleeding and Heparin Induced Thrombocytopenia, UFH is recommended for patients with severe obesity. If warfarin (Coumadin) is selected for maintenance therapy, it should be started as soon as possible in combination with UFH or LMWH for five days and until INR >2. Recent trials have also shown that Direct Oral Anticoagulant (DOAC) are non-inferior in the treatment of PE, may be safer from a bleeding standpoint than heparin/Coumadin, and do not require a heparin bridge; however, these drugs have not been studied in patients with a BMI >40.

The duration of therapy for a provoked PE is three months for all types of anticoagulation options, with a recurrence rate of 2.5% per year.

The patient felt much better by the next morning and had objective signs of improvement. The patient was discharged on enoxaparin 150 mg sq bid (1 mg/kg) x 3 months. The patient's insurance would not cover a DOAC and the patient wanted to avoid warfarin after watching her friend experience warfarin skin necrosis.

The patient stated that she was very diligent with taking her enoxaparin and was feeling almost back to baseline until 26 days later when she had recurrent acute onset of shortness of breath and pleuritic chest pain. Patient also had fever to 102.8, HR 124, RR 35, WBC

12, and O2 sat 92% on 3 L nasal canula. Chest CT was repeated and showed stable persistent right-sided clot, but had new evolving right-sided lung infarcts. Repeat TTE showed mild-moderate RV dysfunction. Labs were notable for an improved BNP of 59 and negative troponins.

The patient was started on IV heparin. Interventional cardiology felt that there was no role for thrombolysis and favored that the patient be kept on heparin in higher therapeutic range. She was also covered with broad-spectrum antibiotics while cultures were pending. A hypercoagulable workup was unremarkable and lower extremity Doppler's showed no evidence of DVTs.

Hypercoagulable workup often includes factor V Leiden, protein C, protein S, homocysteine and age appropriate cancer screening. It is often not needed in patients with their first PE or provoked PE/DVT.

The patient was clinically improved after treatment with LMWH, but subsequently developed a lung infarct. Interestingly, she had no improvement in her right sided clot after about 4 weeks of treatment. This lack of improvement could be caused by three possibilities: treatment failure, non-adherence/poor absorption, or chronic thrombus. When the patient presented to the ED, a factor Xa level was not collected before heparin was started, and thus it was unclear whether the patient failed Lovenox therapy or was non-adherent. In addition, lung infarcts can occur despite anticoagulation due to the increased flow through the bronchial circulation and elevation in pulmonary venous pressures therefore LMWH failure cannot be completely assumed. However, given the patient's morbid obesity, the patient was started on a heparin bridge to warfarin.

One month later, the patient's RV size and function were nearly normal on her repeat echocardi-

ogram and her BNP had normalized. This suggests that she did have benefit from anticoagulation.

Learning Points

1. Pulmonary embolism can cause evolving lung infarcts despite anti-coagulation therapy.
2. Obtaining an Xa level in the Emergency Department is imperative if a patient is on Lovenox with a suspected diagnosis of PE to help guide diagnosis and further management.
3. Choosing the correct anticoagulation in obese patients is challenging and more data is needed to assess the efficacy in LMWH and DOACs among patient's with BMI >40.

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MAINTENANCE OF CERTIFICATION (MOC) UPDATE AND ABIM SUMMIT REPORT

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This article contains excerpts from the ABIM Summit Report

On May 21, 2018, The American Board of Internal Medicine (ABIM) welcomed 102 attendees from 34 organizations to gather in Philadelphia for the largest Internal Medicine (IM) Summit to date. This meeting was an opportunity for senior leaders of the internal medicine community to assemble and discuss certification and issues affecting the IM community at large. Eric Bass, SGIM president, and Deborah Kwolek, SGIM MOC chair, represented SGIM at the meeting.

Meeting Highlights and Messages for SGIM Members

Dr. Richard Baron, president and CEO of ABIM, began by speaking about the roots of board certification, which originated at a time when false claims of medical expertise were used as a strategy to attract patients and threatened to sully the reputation of the medical community. He noted that “doctors get their authority not as individuals, but as members of a community that has collectively validated their credentials.” It was stressed that ABIM has been enhancing its programs in response to member feedback, and is committed to making the assessment options and MOC requirements less burdensome for physicians.

Currently, the Maintenance of Certification (MOC) program requires that physicians earn some MOC points every two years to be reported as participating in MOC. To be reported as certified, physicians must earn 100 points every five years, 20 of which must be medical knowledge (the points earned every two years count toward the 100 points) and meet the MOC assessment requirement through either the traditional 10-year exam or the 2 Year Knowledge Check-In option.

The ABIM portal should be used by physicians to check if assessments, or MOC requirements, are due by December 31st of this year, and to plan for 2019. Many physicians are coming up on their first five-year MOC program requirement and will need to have earned 100 points by the end of the year to remain certified.

- If an assessment or MOC points are due by the end of the year, check the physician portal to register as soon as possible and view MOC options: www.abim.org/maintenance-of-certification/earning-points.aspx
- Many activities now supply both CME and MOC for the same activity-including the SGIM annual meeting!
- UpToDate now provides both CME and MOC credit.

Physicians should log in to their account when accessing UpToDate throughout the work-week to accumulate points.

- Knowledge assessment modules, including: Update in Internal Medicine, Update in Hospital Medicine and Caring for the Underserved, each worth 10 MOC points, are available on the ABIM Web site at no cost to those enrolled in the MOC program.

MOC Assessment Choice Options: Increased Flexibility

Diplomates may choose between the traditional 10-year exam or an every 2-year Knowledge Check-In. Doctors can switch between these two options, are encouraged to try the Knowledge Check-In, and can easily go back to the 10-year exam if that works better for the individual.

- Physicians can take and fail the Knowledge Check-In, even multiple times, without having to take the 10-year exam if it has been less than 10 years since they last passed the MOC exam.
- The popularity of the 2-year Knowledge Check-In option is growing and taking the assessment counts as a 20 point MOC activity.
- Knowledge Check-ins and 10-year MOC exams now offer access to UpToDate during the exams.
- Physicians can take the Knowledge Check-In and the traditional 10-year MOC exam in the same year and will earn 20 MOC points for each attempt.

“Why Incompetence Fails to Recognize Itself”: A Special Session Presentation on the Value of Summative Assessment

Dr. David Dunning, professor of psychology at the University of Michigan, presented about the psychology behind continuing education and self-assessment. At the outset of his presentation entitled “Why Incompetence Fails to Recognize Itself,” Dr. Dunning asked the physicians in the room to think about their communities, and whether they know clinicians to whom they would not send their family. Next, Dr. Dunning introduced the audience to his research, which explores how people’s perceptions of themselves don’t align with reality. He summarized significant studies in the field to illustrate that there tends to be no correlation between what we

continued on page 13

know and what we think we know.

The effect of overestimating knowledge and abilities persists even when research subjects are offered money to assess themselves accurately. Dr. Dunning explained the most lauded of his own research findings, which quantifies the ignorance of the lowest performers, and is known as the *Dunning-Kruger Effect*: people believe they are performing in the 50-60th percentile but are in fact hovering around the 12th. In other words, Dr. Dunning continued, “people who are incompetent or poor performers don’t know how badly they are performing; if they did, they would ask for help. The knowledge and intelligence that are required to be good at a task are often the same qualities needed to recognize that one is not good at that task—and if one lacks such knowledge and intelligence, one remains ignorant that one is not good at that task.”

Overconfidence peaks a few years after the completion of residency, when physicians may overestimate their skills, and not ask for help. With increasing experience, most physicians realize that their knowledge is limited and will ask for help via consultations more readily. While we can make every effort to be as impartial and honest as we can, Dr. Dunning explained, we simply cannot see how much we do not know, and ego will keep us stuck in the Dunning-Kruger Effect. He concluded by showing data to demonstrate that on top of the low correlation between perception and reality in self-assessment, people tend to seek improvement for their strengths, not their weaknesses. People study what interests them most.

Dr. Graham McMahon, president and CEO of the Accreditation Council on Continuing Medical Education, built on Dr. Dunning’s data discussion by encouraging the audience to think about how continuing education models should be designed to spark engagement, improvement, and change. He challenged medical society representatives to consider that a physician might be

at the annual meeting but not actually learning; rather, the physician must be engaged with immediately relevant material that is delivered efficiently by a trusted source. He noted that “information is no longer our currency in education; the currency now is skills, problem-solving and performance management, because I can look up the guidelines faster than you can tell them to me.”

Per Dr. McMahon, this engagement becomes even more challenging when physicians are burned out, have trouble assessing their own deficits, and lack a curriculum for their unique practice type and learning needs. The key issue for medical societies is evolving into an educational home for physicians, creating competency expectations, capitalizing on others’ assessments and supporting quality improvement. His model for continuing education moves away from the concept of attending one session to hear information and toward a system where boards and societies share responsibilities for establishing and assessing a competency framework.

At the conclusion of the Summit, Dr. Patricia Conolly, secretary of the ABIM Board of Directors, opined, “Underneath is the reality that no one is very good at self-assessment, which won’t serve our patients in the way they should be served. As medicine changes and we adapt, unlearning the old is very much a part of keeping up, and that needs to be rolled into how we stay current. Our duty is to ensure that physicians who know how to deliver care are leading the way in determining what it means to do that well.”

In conclusion, MOC requirements and assessments to maintain certification are here to stay, and continue to evolve in response to physician feedback. SGIM will continue to work to provide members with quality continuous learning through the annual meetings and publications. Members are encouraged to visit the ABIM Web site to check the status of their MOC and

assessment requirements and contact ABIM with any questions.

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MEDICAL EDUCATION

(continued from page 7)

institutions and GIM divisions, as well as protecting faculty time to lead the planning and evaluation efforts. Outside of local institutional initiatives, GIM as a whole will also need to meaningfully address physician burnout, lower compensation, and high workload to attract more trainees to the field, which are specialty-wide concerns that were echoed by our #ProudtobeGIM attendees.

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health informatics officer, Division of Health Information Technology at Centers for Medicare & Medicaid Services (CMS) elucidated the roles of the NLM and CMS in promoting interoperability. Among all attendees, there seemed to be a clear consensus regarding the overarching goals and ideal future state.

Challenges in the Journey to Full Interoperability

There are multiple stakeholders nationally and internationally with disparate motivations and priorities. Furthermore, the HSPC CIIC must incorporate business expertise such that the three domains (clinical, technical, business) are all aligned and focus efforts effectively. Currently, the HSPC CIIC has substantial technical expertise available and is developing a stronger base of clinical expertise. Additionally, as noted above, a single methodology for data modeling has not been accepted across the healthcare industry. There have been several efforts at creating common data models, several of which have not been broadly adopted, although, the HL7 Fast Health Interoperability Resources (FHIR) standard and HL7 Consolidated Clinical Document Architecture (C-CDA) have gained some traction. Furthermore, the Substitutable Medical Apps and Reusable Technology (SMART) application platform seems to have broad support. One example of a proof of concept “SMART on FHIR” application is the “Bilirubin Chart” developed by Intermountain Healthcare, which overlays bilirubin results over a time-based risk chart.⁴

NLM and CMS Perspective

Both organizations recognize the importance and potential value of interoperability and have plans to devote resources towards its pursuit. Notably, the NLM has a clearly articulated scope and vision for their involvement in promoting interoperability. Some currently available resources from the NLM include the

NLM Common Data Element (CDE) Resource Portal and NLM Value Set Authority Center (VSAC). NIH encourages the use of CDEs in clinical research, patient registries, and other human subject research to improve data quality and opportunities for comparison and combination of data from multiple studies and multiple electronic health records. This portal provides access to information about NIH-supported CDEs as well as the tools and resources needed to assist investigators developing protocols for data collection. The VSAC is a repository and authoring tool for public value sets created by external programs. Value sets are lists of codes and corresponding terms, from NLM-hosted standard clinical vocabularies (such as SNOMED CT®, RxNorm, LOINC® and others) that define clinical concepts to support effective and interoperable health information exchange. The VSAC also provides downloadable access to all official versions of value sets specified by the CMS electronic Clinical Quality Measures (eCQMs).

CMS resources include Blue Button 2.0 and the Virtual Resource Data Center, both of which are promising programs. Leveraging the HL7 C-CDA standard, Blue Button 2.0 from CMS is an API that contains four years of Medicare Part A, B, and D data for 53 million Medicare beneficiaries. The CMS VRDC is a virtual research environment that provides access to Medicare and Medicaid program data in a more efficient and cost-effective manner. The CMS commitment to the goal of achieving interoperability is clear given the recent focusing of the “EHR Meaningful Use” program towards “Promoting Interoperability.”

SGIM Role and Recommendations

We believe Clinical Informatics is a natural career pathway for clinicians with an interest in General Internal Medicine and promoting interoperability. As front-line clinicians, gener-

al internists will realize the benefits from fully integrated health record cross-platform interoperability. Furthermore, in the era of evolving reimbursement models, there may be opportunities for monetizing the development of computer-interpretable clinical guidelines built into EHRs. SGIM could be a leader in this area. By encouraging SGIM members to focus on NLM and CMS priorities and leveraging currently available resources (i.e., NLM Common Data Element Resource Portal and Value Set Authority Center, CMS Blue Button 2.0, and Virtual Resource Data Center) where possible in clinical innovations, quality improvement projects and research proposals, SGIM can maintain a leadership role in pushing these efforts forward. In addition, SGIM has a large role to play in communicating the clinician perspective and should do this in a way that advocates for a reduction in un-coded information (i.e., faxed and scanned documents) and an increase in exchange of structured data in routine clinical care. Most of the benefits of interoperability only accrue if most of the data being exchanged are sent in coded form.

The HSPC CIIC hopes to play the main role in promoting interoperability, although it has competitors. To ensure a voice in shaping the future of interoperability, it seems prudent for SGIM to maintain some degree of involvement in the evolution of the organization. We recommend sending at least one representative from SGIM per year to maintain a voice in the organization and to understand the direction of the organization and encourage progress towards interoperability.

Finally, while interoperability holds great promise, it seems prudent for SGIM leadership to consider optimal timing for resource deployment. Currently, the roadmap towards interoperability appears rocky, and while we think SGIM must be involved, it may be a long-term

continued on page 15

al core competencies in clinical skills in general internal medicine with further differentiation by practice setting. These competencies can be used to guide the development of learning objectives, evaluation methods, and curricula for training programs. SGIM has an *outstanding* suite of career development programs in leadership, education, and health policy that offer unique experiences for members to gain important skills that will help us advance our vision of a just health system for all. Certainly, SGIM's career development programs are considering the full breadth of individual professional core competencies and how they align across different career development stages and trajectories for academic general internists.

In the Robert Wood Johnson Clinical Scholars National Leadership Program, we consider competencies in equity, diversity, and inclusion (EDI) as integral to developing change leaders for the future. We have an integrated set of leadership and EDI competencies and use a framework that includes domains in the personal, interpersonal, internal organizational leadership and organizational/community impact. Some of the EDI competencies include the following:

- **commitment to diversity and inclusion,**
- **social justice,**
- **building capacity to advance health equity,**
- **practice multiculturalism,**
- **fostering diversity and inclusion, and**
- **social determinants of health and advocacy.**

The IOM report on Health Professional Education Summit articulated “Core Competencies Needed for Health Care Professionals”¹ that would be required for a redesign of our health system to meet the current challenges we face as a profession. The report suggests that all health professionals should possess the

following core competencies to meet the needs of the 21st-century health-care system: provide patient-centered care, work in interdisciplinary teams, employ evidence-based practice, apply quality improvement, and utilize informatics.

I offer these examples to start a conversation about how we can embed the concept of core competencies in our collective work to move us steadily closer to our vision of a just system of care that allows everyone to achieve optimal health. As you think about our career development offerings, annual and regional meetings, and other programs and initiatives, I would love to hear your thoughts on organizational core competencies that would allow us to move together to achieve SGIM's vision.

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FROM THE EDITOR

(continued from page 2)

addition, we present an interesting perspective piece on the use of standardized patients by Joseph deBettencourt, a current second-year medical student at Rush Medical College who has the unique perspective of having been a standardized patient. A couple of articles on health IT and another thought provoking and informative Morning Report should hold us until December.

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(continued from page 14)

investment, as it is not clear when interoperability will be achieved. As the roadmap evolves, we recommend SGIM regularly reevaluate investing resources into development of information resources that will affect our practice, such as computer-interpretable clinical guidelines. If interoperability of coded data is achieved, the potential return on investment for our physicians, the profession of medicine as well as our patients, families and communities will be profound.^{2,5}

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**Boston University School of Medicine / Boston Medical Center—
 Medical Director for Primary Care**

The Section of General Internal Medicine at Boston Medical Center and Boston University School of Medicine is seeking an innovative and inspirational faculty leader to serve as Medical Director for Primary Care, providing overall leadership responsibility for Primary Care Operations, Transformation and Innovation.

Working with an Associate Medical Director, Administrative Director and Clinic Operation Managers, the Director has responsibility for Primary Care operations, transformation, and innovation. The Director will have important roles in ensuring the success of our very exciting Medicaid Accountable Care Organization as well leading our primary care clinicians to continue to excel in all aspects of high value, patient-centered care. The primary care practice in the Section of General Internal Medicine has 70 faculty and responsibility for approximate 38,000 patients. In addition, the practice has critically important specialized pro-

grams in Office-Based-Addiction-Treatment (e.g., buprenorphine), Women's Health, Refugee Health, patient navigator programs, Care Coordinator program, Clinical Pharmacist Program, and TOPCARE for safe opioid prescribing.

The Primary Care Medical Director will oversee Practice Team and Leadership Development by creating a culture of continuous performance improvement, responsible stewardship of resources, and career development of our talented clinical faculty. The Director will also have an important role in ensuring that the primary care practice facilitates effective educational environment for our students, residents, and fellows in primary care. The Director will report to the Chief, Section of General Internal Medicine and the Vice Chair for Clinical Affairs in the Department of Medicine, and will be expected to work collaboratively with the BMC leadership team in formulating strategic plans for the practice.

This is an exciting time to join the Section of General Internal Medicine at New England's largest safety-net hospital and make a real impact. The Section is comprised of a diverse, energetic and committed group of Primary Care Faculty Members. Boston Medical Center is committed to growing and strengthening Primary Care, and the Section of General Internal Medicine has embarked on an effort to further transform our NCQA-certified patient centered medical home into a leading primary care practice with a focus on providing high-value, team-based care consistent with our mission for caring for Boston's underserved.

Boston University is an Affirmative Action and Equal Opportunity Employer. Salary and faculty rank will be commensurate with prior experience and qualifications. Interested candidates - please send a cover letter and CV via email to Jeffrey Samet, Section Chief of General Internal Medicine: jsamet@bu.edu

**Boston University School of Medicine / Boston Medical Center—
 Associate Medical Director for Primary Care Transformation and Innovation**

The Section of General Internal Medicine at Boston Medical Center is seeking an innovative and inspirational leader to join the Primary Care Leadership team as the Associate Medical Director for Primary Care Transformation and Innovation. This is a faculty position in the Department of Medicine and the Boston University School of Medicine.

This position will combine direct patient care with significant administrative time to lead change and quality improvement in key priority areas. The Associate Medical Director will work closely with the Medical Director to lead the efforts to drive changes in primary care as the hospital transforms into an Accountable Care Organization for the safety-net population. In partic-

ular, the Associate Medical Director will lead a multidisciplinary team in conceptualizing and implementing a care delivery model for complex and high-risk care management from the ground up. Successful applicants will have experience in change management, project implementation, process improvement, and managing diverse teams. This leader will serve on key quality and strategy committees, interact directly with Hospital and Department of Medicine leadership, and will have leadership development and mentorship opportunities tailored to the applicant's interests. There will be an expectation of teaching and scholarship related to primary care quality and innovation work.

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