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To Promote Improved Patient Care, Research, and Education in Primary Care and General Internal Medicine

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EDUCATORS' CORNER

Learning How to Think: JGIM's Clinical Reasoning Series

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"I've had a horrible summer," said Mrs. W., a previously robust and healthy nonagenarian, when I first met her in the noisy and crowded emergency room. She was fatigued, and had lost her appetite, as well as 10 pounds of weight. She was too tired to care for herself and had been coughing "constantly" over the last week. A linguist, Mrs. W. had travelled the world in the 1970s and 80s before returning to settle near her family who supported her in order to continue to live independently. Mrs. W. had a cough, hypoxemia, an elevated white blood cell count, and a chest x-ray infiltrate (albeit an atypical one). This was a clear cut case of community acquired pneumonia—my first one! We were not sure why she had declined functionally over the last few months, but planned on treating her pneumonia and setting her up for close outpatient follow up. Three days after admission her pneumonia hadn't improved. Just prior to rounds on her fourth hospital day, my intern got off the phone with the microbiology lab and said "Sputum positive for Tb." He proceeded to stop Mrs. W's antibiotics for community-acquired pneumonia and contacted the infectious diseases consultant to help treat her tuberculosis. Unfortunately, ten days into her hospital stay, Mrs. W. succumbed to her illness.

As a third-year medical student on my first clinical rotation, I was stunned to have missed a diagnosis of tuberculosis—a condition we had spent an extraordinary amount of classroom time learning about. In retrospect, the pieces to solve this puzzle were there, but we had chosen to put them together differently, ignoring the jagged edges that hinted at our mistake. Viewed from the perspective of positive sputum cultures, her atypical x-ray infiltrate suddenly stood out as the "classic" miliary tuberculosis pattern. Her cough and subacute functional decline now had a clear unifying cause. The entire team possessed all the *facts* needed to solve the case, and yet we had somehow failed to do so. We were devastated by the outcome, but unclear how to prevent this from happening again. "How can we learn from this?" my attending asked as we debriefed this case the next day. Instantaneously, my intern responded: "teach us *how to think*."

Diagnostic errors are widespread and every clinician experiences them.[1] The Institute of Medicine's report on "Improving Diagnosis in Health Care" declares that improving the diagnostic process "represents a moral, professional and public health imperative" with education in the diagnostic process delineated as a key goal.[2] Data from malpractice suits

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Our Voice for Change

Joseph Conigliaro, MD, MPH

Editor in Chief, SGIM Forum

Change is inevitable. This past year, we have experienced significant changes and transitions in our national and local elections and in our national priorities. These changes in leadership and society are also echoed in health care. Health care has seen many transformations over the last several years with the advent and struggle over the Affordable Care Act to a possible repeal and replacement with the American Health Care Act. SGIM has also changed predictably and incrementally with each new president and council member and more significantly with the upcoming introduction of a new physician CEO. The SGIM *Forum* will also be part of that change. Every three years there is a traditional passing of the torch, and this is one of those years. This is my first issue as the *Forum's* editor in chief. Fortunately, unlike other administrative leadership changes we have witnessed, this one will be smooth and the new administration will celebrate the accomplishments of the outgoing chief. I am fortunate to have taken over the reins from Dr. Karen Horowitz, whose outstanding leadership over the last three years has made *Forum* a welcome and important channel to gauge the pulse of the Society. Thank you, Karen!

In order to be successful in academia one needs to be able to communicate effectively to stake holders. The content published in *Forum* has never been more relevant to SGIM members. So much has happened in health care over the last several months. It is imperative that we are up to date as to how the footprint of these events affects academic GIM, our patients, our learners, and society. It is integral to our professional activities. Healthcare providers, particularly generalists, and their patients face uncertain times ahead. There is an urgent need for a coherent voice to communicate the values of SGIM. *Forum* can be the vehicle that members use to advocate around policy decisions and to channel concerns about the current state of health care in the United States. *Forum* has evolved into a powerful venue for SGIM to convey those values both internally to its members and externally to society. An effective and efficient tool in reporting SGIM events, *Forum* discusses member-generated questions and exchanges ideas on topics of mutual interest. Over the next several months, the editors of *Forum* plan on hearing from you, SGIM members, on how we can make *Forum* an even more important voice and reference for what's happening in general internal medicine. Give us ideas on content and critique our efforts. I encourage you to e-mail me with ideas and comments on *Forum* content at editor.sgimforum2017@gmail.com. Letters to the Editor are welcome.

In the next few months, we will explore the increased use of Internet-based methods, such as social media and communication, to further the

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SGIM's Finances: Charting Our Course into the Future

Thomas H. Gallagher, MD, (President, SGIM), and
David C. Dugdale, MD, (Treasurer, SGIM)

. . . we will undertake a Society-wide dialog on strategies to increase revenue while remaining true to our core values as soon as our new CEO is in place. Feel free to share your thoughts with me directly at thomasg@uw.edu.

SGIM Forum

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SGIM is in many respects a member-funded cooperative; for example, in 2016, SGIM received $3.17 million dollars in income, of which approximately 66% originated from members in the form of dues (24%) and annual meeting registration/submission fees (41%)—see Table 1. The members elect a Board of Directors (Council) that sets the organization's strategic direction and hires a staff to carry out this plan for the benefit of the membership.

However, unlike many voluntary membership associations, only 6% of the Society's income in 2016 originated from external funds. This funding structure has enormous benefits, allowing the Society to focus intently on programs that benefit our members while minimizing the challenges associated with financial conflicts of interest that can arise when external funds constitute a significant portion of the budget. Yet as the Society's interests and aspirations grow, it is an opportune time to undertake a dialogue within the Society about opportunities for securing additional external funds while continuing to observe the principles and limits set forth in our external funding policy.

Table 1 presents the Society's income in 2016 in which major sources of income included the annual meeting (41%), JGIM (26%), and membership dues (24%). In 2016, external funds constituted approximately 6% of the Society's total income: 4% ($140,000) from a long-standing relationship supporting UpToDate and 2% ($65,077) from the annual meeting career fair and online job advertisements. Individual contributions represented 1% ($27,251) of the Society's total income last year.

One of Council's most important responsibilities is to ensure and enhance the Society's fiscal health. By all accounts, the Society's current financial position is secure—its unrestricted reserve funds total $1,260,898, as of June 2016, which is in line with our benchmark of

Table 1: 2016 SGIM Income

Income Sources	2016 actual	%
Annual Meeting Registration, Submissions	$1,311,497.00	41%
JGIM (Subscriptions, Editorial Support, Royalty)	$832,972.00	26%
Membership Dues	$755,258.00	24%
UpToDate	$140,000.00	4%
Individual Contributions	$27,251.00	1%
Annual Meeting Career Fair, Career Center Ads	$65,077.00	2%
Miscellaneous Income	$7,123.00	0%
Membership List Sales	$2,360.00	0%
Prior Year Surplus Directed Toward Innovation	$29,583.00	1%
Total income, 2016	**$3,171,121.00**	**100%**

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See It, Snap It, Share It: The Value of Clinical Images

Amanda Clark, MD, and Avital Y. O'Glasser, MD, FACP

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> "You don't make a photograph just with a camera. You bring to the act of photography all the pictures you have seen, the books you have read, the music you have heard, the people you have loved."
>
> —Ansel Adams

Humans communicate through visual media. More than 40,000 years ago, we communicated through cave drawings, some of which still survive as a permanent record of human evolution. Human language evolved through pictographs, forming the basis for early alphabets. Pictures, images, and photographs still form the core of our means to communicate—from children's books to illustrated medical text to social media. Undeniably, visual imagery adds value to our education.

In recent years, SGIM *Forum* has published many articles on the value of writing and publishing case reports. Dr. Clifford Packer wrote that while we tend to focus on "high quality" RCTs, case reports and case series help learners generate hypotheses, acquire writing skills, perfect reviews of the literature, and hone different sets of cognitive skills.[1] He also emphasized the role of a case report in building extended mentoring relationships. An article by Dr. Smola and colleagues also highlighted publishing interesting cases and presented a list of possible venues for clinician educators.[2] With this piece, we intend to emphasize the value of preparing and publishing clinical *images* to the mentee and mentor.

Sharing clinical images can be useful for meaningful clinical education. In these days of smartphones, Instagram©, and Snapchat©, everyone is an amateur photographer. At least 80 percent of physicians owns a smartphone, and tablet devices are more popular as they become more miniaturized.[3] Millennial learners are attuned to and actively engage in visual communication, and the cognitive theory of multimedia learning (learning by integrating pictorial and verbal information) has been applied to medical education.[4] While traditional journals remain potential venues for clinical images, medical image forums on social media are also becoming increasingly popular. Figure1©, described as a "crowdsourced photo sharing app for health care professions", is perhaps one of the most popular.[5]

While sharing and publishing clinical images may be less time consuming than publishing a case report, it requires one to be mindful and attune to potential subject matter. Clinical images can consist of physical exam findings, EKGs, radiology studies, even specimen collection containers—anything that is infrequently visualized or extraordinary. Many clinicians recognize the value of images already by pointing them out to learners during clinic visits or bedside rounds. A recent editorial in JGIM celebrating the growth of its Clinical Image section also highlighted the role of clinical images in enhancing illness scripts and aiding diagnostic efforts.[6] Whereas one might say, "Wow, we should publish that!" at the conclusion to a case, being attune to the potential of a publishable photograph requires the clinician to be mindful and in the moment at the time of patient encounters.

We advocate utilizing clinical images for educational purposes by taking advantage of readily accessible technology. Sometimes, writing a 200-word accompaniment to a clinical image can be more challenging than writing a full case report. One must distill down the case and the learning pearls. Perhaps the social media generation who has mastered the art of short-form communication via text messaging is the one to master the art of the short-form medical publication.

If you choose to pursue clinical image publication, remember to do so safely and professionally. Patient privacy remains the primary concern; always apply common sense. Check your hospital or institution's media acquisition policy. For example, OHSU has a patient consent form for use of media. Make sure to never include anything in an image that could readily and rapidly identify a patient, such as an identification wrist band. It is common practice to insert a black box over someone's facial features to prevent facial identification, though sometimes a full facial image is required. In such case, you may need to highlight how patient consent was received. In addition, ensure that patient privacy is protected in any accompanying blurb. Many journals independently require patient consent forms for any case submission (or provide for

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Clinical Informatics: Journeys into an Emerging Subspecialty

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Clinicians of all backgrounds have experienced the challenges of the introduction of clinical information systems, yet we know well that technology can enhance and connect our personal lives. Nonetheless, with vast—and growing—streams of health-related data, information, and knowledge about patients and populations, assimilating intelligent computational systems into healthcare systems is essential to support busy and overburdened clinicians to function at the top of their licenses. Embracing information technology in current clinical practice is inevitable, and some clinicians may consciously choose to pursue subspecialized knowledge and skills in this field. Known as clinical informatics, it is the discipline of applying information technology to better understand and deliver health care. As a rapidly growing subspecialty, clinical informatics now includes a growing number of advanced training pathways, including graduate degrees and certificates in informatics disciplines, fellowship training programs, and subspecialty board certification accredited by the ACGME (Accreditation Council for Graduate Medical Education). Prior to these more contemporary pathways to informatics training, applied experience as a clinician executive or degrees in computer science oriented disciplines were more prevalent, and are still commonplace with the "grandfathering" of eligibility for the board certification examination. This article describes two potential pathways and personal journeys of two clinical "informaticians" to inform young physicians contemplating a career in clinical informatics.

Clinical Informatics, a Physician Perspective

As a medical student and internal medicine resident, electronic health records were already an integral if understudied element of the training experience. However, my practice-driven insights about informatics evolved in parallel with policy-shaped practice changes and a personal thirst for greater understanding. In residency, as Meaningful Use incentives came to be, my practice perspective of informatics was limited to rule-based order sets and best practice alerts, and manually crafted summary reports, such as handoff reports and discharge summaries. Patient portals were a new offering for clinic patients, one that I had been cautioned about adopting by my continuity clinic attending who frowned upon the potential added, non-reimbursed time and effort it would take to maintain such service. Upon completing my residency to enter practice as a primary care physician, I realized that I needed more information about my patient population: how well-controlled was blood sugar for my patients with diabetes? why did it take so long to interact with the system to complete notes? I naturally gravitated towards work that would address these questions in my practice, and sought greater freedom in learning about organizational best practices that addressed these challenges. For these reasons, I pursued a fellowship in Medical Informatics, and subsequent board certification in Clinical Informatics. As with the majority of practicing clinicians, obtaining a graduate degree was not a feasible option for me, and the fellowship pathways followed by board certification, as a subspecialty, seemed the most achievable option. In the longer term, the board certification also appropriately emphasizes organizational and cultural infrastructure relevant to health IT systems, rather than technical knowledge and skill about healthcare computing alone.

Clinical Informatics, a Physician-Scientist Perspective

With prior experience as a professional software developer before entering medical school, I already expected to contribute more through research and development than by direct clinical care. I completed a joint Medical Scientist Training Program with an MD combined with a PhD in computer science. Ultimately, I did complete medical residency training for the unique rewards of direct clinical care and to inform my research to address clinically relevant questions. I sought to identify technologies that I wanted to "pull" into my hospitals and clinics rather than having them pushed onto us by staff or leaders who've never experienced the challenges of clinical practice themselves. More so, if such technologies did not yet exist, it inspired me to identify opportunities to create them. With my background, I was eligible for a research "fast track" to excise one year of residency training through to a fellowship and further research. When asked in 2011 what subspecialty I wanted to fast track into, I easily stated "Medical Informatics," but was told, "That's not a real specialty. You'll have to choose something else." Instead, I got the full value out of a complete medical residency training, including time to prototype a concept on data-mining electronic health records to generate clinical decision support content. A subsequent Veteran Affairs Fellowship in Medical Informatics gave me the protected time to develop my research ideas and to successfully compete for an NIH Big Data 2 Knowledge Career Development Award. This has given me a platform for continued development

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An Unexpected Doxylamine Nightmare

Ashley Husebye, MD, and Rachel Sandler Silva, MD, MPH

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A 63-year-old man with a past medical history of well controlled hypertension, prior transient ischemic attack, and rheumatic fever without heart disease was admitted to the hospital after his neighbor found him screaming and slumped over in the hallway of his apartment building. The neighbor noticed the patient's mental status was altered and he was in significant pain. Emergency Medical Services (EMS) was called and, upon initial examination, he was confused and only oriented to self. He was unable to provide any additional history regarding his presentation upon arrival to the hospital, but was noted to have intense bilateral shoulder pain. Physical examination revealed mildly elevated blood pressure, encephalopathy, a large left flank contusion, and intense tenderness to palpation to the bilateral shoulders without the ability for abduction. Laboratory labs revealed an elevated lactate to 5.8 mmol/L and leukocytosis of 25K WBCs. He underwent a CT of the head due to his encephalopathy, which was without abnormalities. X-rays demonstrated a right comminuted fracture about the humeral head including mildly displaced fracture of the greater tuberosity and a left comminuted displaced fracture of the left humeral head involving the lesser tuberosity. The shoulder dislocations were reduced in the ED. Orthopedics was consulted and determined the patient was not a surgical candidate. The patient was admitted to the medicine floor for further observation and workup.

Right comminuted fracture about the humeral head including mildly displaced fracture of the greater tuberosity

By the following morning, the patient's encephalopathy had resolved and was thought to be consistent with a post-ictal state. Upon further questioning, the patient reported that he had been feeling well prior to his presentation. He remembered waking up in the middle of the night with excruciating bilateral shoulder pain and was unable to move his arms. He could not dial 911 due to the pain so he went into the hallway of his apartment building to seek help from his neighbors. The patient recalled screaming in the hallway until his neighbor found him, after which he lost consciousness; he did not recollect further events until evaluation in the ED. He denied prior history of seizures, family history of seizures, recent trauma, illicit drug use, or alcohol use. His medications prior to admission included amlodipine, rosuvastatin, lisinopril, and a baby aspirin. He was compliant with his medications and there had been no recent changes to his prescribed medications. The patient's only new medication was doxylamine of which he took one tablet the previous night for insomnia. He has taken this medication one time previously and woke up the next day with severe muscle cramps.

Doxylamine (Unisom) is an over-the-counter, first-generation H1 antagonist, and commonly used for insomnia. In addition, doxylamine is frequently added to over-the-counter nighttime cold medications, including Nyquil (a combination of acetaminophen, dextromethorphan, and doxylamine). Common side effects of doxylamine include tachycardia, disorientation, vertigo, urinary retention, and diplopia. Doxylamine toxicity has been associated with seizures and rhabdomyolysis, but has been under-recognized. Clinical presentations of doxylamine toxicity vary, but should be considered in patients with new onset seizures and rhabdomyolysis given the potential for abuse. More concerning still is that previous studies suggest there is no correlation between the toxic effects of doxylamine and drug

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An unexpected doxylame nightmare: a man wakes up with seizures, bilateral shoulder dislocations, and bilateral humeral fractures.

Integrating Behavioral Health and Primary Care at Three Academic Safety-net Clinics

Katherine Small, MD, Amy Weil, MD, Ellie Grossman, MD, MPH, and Lauren Peccoralo, MD, MPH

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Mental illness and substance use disorders are common and primary care providers (PCPs) often encounter them in practice.[1, 2, 3] Many PCPs in national surveys cite lack of access to mental health and substance use services, and shortage of behavioral health providers, as barriers to providing their patients with optimal care.[2, 3] Collaborative care models are designed to overcome these barriers.[4, 5] These models consist of interventions that use non-physician mental health providers working closely with PCPs and psychiatrists in collaborative, co-located and integrated teams.[4, 5] The aim of this article is to describe three examples of integrated behavioral health teams in academic primary care settings in different geographical locations and highlight their challenges and successes.

First, the Internal Medicine Associates (IMA) Practice at Mount Sinai Hospital in New York City is an academic practice with more than 170 providers treating more than 18,000 underserved patients. IMA's Integrated Behavioral Health Primary Care Program (IBHPCP) features universal screening for depression, alcohol, and substance use; advanced training in mental health and substance use for providers; embedded mental health providers; and, close partnerships with social work care coordination. Medical assistants screen patients annually for depression and substance use during triage. For a positive screen, the patient completes a PHQ-9, AUDIT-C or DAST-10 questionnaire. As appropriate, the PCP places a consult to the behavioral health team (for mental health) or to the social work team (for substance use). Depression Care Managers (DCM-licensed master's social workers) conduct real-time warm handoffs or will call the patient within the week for triage to one of the following services. Patients with depression and a PHQ-9 score >9 are enrolled in the depression care program, in which the DCMs provide short-term psychotherapy. Patients in need of medication management for depression or anxiety are seen by PGY2 medicine residents in the IMA Mental Health Evaluation Clinic. Patients with refractory depression or other complex mental illnesses see the integrated psychiatrist for consultation and may be referred to the psychiatry social worker (PSW) for psychotherapy. Patients with substance use disorders see social work for referral to an outside treatment program. The IBHPCP team meets weekly to review workflows and caseloads, and to develop treatment plans and coordinate outside referrals.

IMA's IBHPC team includes two DCMs (2 FTE [0.55 FTE/5,000 patients]), one PSW (1 FTE (0.3FTE/5,000 patients), one consulting psychiatrist (1FTE [0.3FTE/5,000 patients]), one administrative coordinator (1 FTE), one physician champion (0.2 FTE), and two medical directors (one psychiatrist and one internist 0.1 FTE each). The psychiatrist and PSW are funded by the department of psychiatry and the other team members are supported by a state-funded program through 2019. In addition, the DCMs receive a per-patient per-month rate from New York State Medicaid via a new collaborative care billing program.

Challenges for IMA include patient adherence with appointments (no show rates vary from 20-50 percent) and medications and provider confusion about the different services. Communication between the PCP and the behavioral health provider is sometimes delayed or missed because resident providers are not in clinic every week. Successes of the IBHPCP include increased PCP awareness and referrals to the programs. Patient engagement and response to treatment has improved for the DCMs by establishing a standard therapeutic protocol involving more warm-handoffs, increased frequency of patient appointments and clearly defined goals for each session. Early data show that disenrollment from the program due to no shows dropped by 50 percent and quarterly improvement rates of PHQ-9 scores went from 31 percent (2015) to 49 percent (2016).

Second, Cambridge Health Alliance (CHA), a safety-net network of primary care clinics in the Boston area serving more than 100,000 patients, has implemented a program of primary care and behavioral health integration (PC/BHI) that includes universal screening, mental health (MH) specialists embedded within primary care (PC) teams, and proactive outreach using disease-based registries. Every adult patient is screened annually for key targeted conditions using validated screening tools for depression, unhealthy alcohol drinking, and

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Intruders, Police Work, and the Virtues of Generalists

Gaetan Sgro, MD

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One Tuesday night last winter, my wife and I awoke at 3:00 AM to the sound of furniture being dragged across a hardwood floor. For the last five years, we've lived in an up-and-coming section of Pittsburgh, PA, where one of the perks of trendiness is the opportunity to share bedroom walls with the neighbors. Another, less celebrated, feature is that sometimes these neighboring houses turn out to be abandoned. We'd already spent several months fretting over the deterioration of the adjacent property; now, it seemed the eyesore had found a new way to keep us up at night.

The two of us sat up in bed, half-asleep and half-listening for several minutes. Our main differentials were burglars, squatters, and, given the character of the sounds—deep, resonant thumps; prolonged, heavy scraping—bears. Reluctantly, I tapped on my phone and called the police.

By the time I'd sleepwalked into my sweats and lumbered down to street level, several officers had begun milling around out front. After listening to my brief explanation, they went to work in pairs, fanning out with flashlights to search both properties. They peered through dusty windows and tattered curtains into the darkness of the neighbor's living room, and traipsed through the forest of weeds behind their house before reconvening around my stoop. Several theories were presented, ranging in severity from wind—which I found insulting—to the likelihood that the intruder was enjoying a good chuckle as he peered down on our gathering. Ultimately, the "CO" determined that, without confirmation of trespassing, there was no cause for forced entry. Reassurance was provided, and the crowd dispersed quietly.

I spent the rest of the night considering the similarities between police work and doctoring: How we both gravitate to those in distress; how we gather evidence and use it to generate hypotheses; how our expertise is assumed regardless of the circumstances; and, how we never know what call we're going to get next.

This is especially true for generalists. An intern comes to me stating that she has found the cause of Mr. Smith's chest pain—it turns out to be a manifestation of the crippling anxiety he's experienced since his only son was murdered last year. A widower is admitted on the brink of myxedema coma because the mortgage company has seized both his assets and his modest pension, and he can no longer afford to refill his Synthroid. A maintenance man with ulcerative colitis has been languishing on our service for three days, spiking high fevers and sweating through his sheets. Our differential expands, but no real progress is made. Consultants come and go. We are the ones left sitting at the bedside, puzzling over his case.

Since Leonardo da Vinci retired his paint brush, quill pen, chisel, scalpel, telescope, and compass, the currency of generalists has been declining. Everyone knows that the way to gain a foothold in the 21st-century economy is to become "superspecialized." As a result, sixth graders are quitting the swim team to devote themselves full time to the more lucrative art of the curveball; academics are disappearing deeper and deeper into esoteric niches; and, in medicine, fellowships are sprouting fellowships. Soon, the parents of a 12-year-old adolescent with soreness over the medial aspect of his elbow will seek out an orthopedist who focuses solely on the ulnar collateral ligament of the left arm.

In medicine, this trend is unsustainable and, largely, a figment of marketers' imaginations. The three generalist disciplines—Internal Medicine, Family Medicine, and Pediatrics—account for a third of the physician workforce in the United States[1]. Generalists are the glue who hold their patients' health and, indeed, the nation's healthcare system together.

Still, what general internist has not, at one time, struggled to describe the scope of his/her practice, to justify its purpose? Without an organ system to define us, simple explanations can seem elusive. How about then every organ system? How about every organ system plus the psychological, sociological, and moral state of the patient? How about the health of an entire population? A whole society? Perhaps generalists are just physicians who take responsibility for everything.

Speaking of the "everything" that lurks, menacingly and beautifully, just beyond the manageable borders of the electronic health record, the drama that visited my family on that particular Tuesday night was ultimately traced to one extra-large and rambunctious raccoon, who managed to skip town a day after I purchased and deployed an overpriced, non-lethal trap. Who knows what future excitement my life as a trendsetter will bring, but as long as it weighs between seven and 44 pounds, I am confident in my ability to manage it.

The willingness to tackle problems that don't conform to a specific set of conditions reinforces the kinship between generalist physicians and members of other helping professions. What the priest, the police officer, and the internist share are our most basic duties: to show up; to bear witness to suffering; and—at our best moments—to embody the Greek roots of the word empathy by entering into that suffering with the people we serve.

Though our highly secularized society works tirelessly to mask it, one

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EDUCATORS' CORNER

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reveals that the vast majority of missed diagnoses in internal medicine are common conditions: myocardial infarction, cancer, and pulmonary embolism.[3] As with Mrs. W., the majority of these mistakes involve errors in clinical reasoning; the way physicians put information together to form a diagnosis.[4]

Most medical schools and residency programs lack formal curricula in clinical reasoning as the importance of the meta-cognitive process in clinical reasoning has not been explicitly described until recently. Therefore, exposure to clinical reasoning occurs when trainees observe expert clinicians performing patient care or solving clinical conundrums in conferences. Learning in this fashion teaches trainees to value medical facts, but the clinical reasoning remains obscure. This leads some trainees to feel as if advanced diagnostic skills are beyond their reach. We believe that a resource that both outlines and demystifies the clinical reasoning process is needed to address this educational chasm.

The *Journal of General Internal Medicine*'s (JGIM) Exercises in Clinical Reasoning (ECR) series began publishing cases in 2010.[5] The ECR series presents interesting cases in the classic Clinical Problem Solving (CPS) format, but takes the extra step of discussing the meta-cognitive approach that the expert clinician uses to arrive at the diagnosis. The series is heavily influenced by the clinical reasoning literature and draws upon cases from all over the United States, Canada, and Japan. The cases range from the routine to obscure, but all have the common thread of outstanding clinicians discussing cases when the cognitive load (amount of available information) is high. Demystifying how these experts think about clinical dilemmas makes what is invisible (sorting a dizzying amount of clinical information) now visible (creating a reproducible approach to deductive reasoning in patient care).

To further our ability to help educators teach these important reasoning concepts to trainees (and each other), we recently expanded our materials to the JGIM Web site. There, we provide educators with robust teaching tools focused on clinical reasoning. Downloadable cased-based teaching slides developed from the ECR cases are currently available on the website. These cases emphasize core clinical reasoning concepts: dual process theory, illness scripts, and problem representation. Embedded with a teaching guide, these PowerPoint presentations promote group-based learning by engaging teachers and learners alike. The built-in curricular flexibility enables teachers to deliver the content in short, 15–30-minute interactions, such as Attending Rounds, or more formal hour-long sessions, such as Noon Conference. In the coming months, additional teaching presentations addressing other fundamental reasoning concepts such as diagnostic schema, anchoring bias and Bayes Theorem are planned.

Along with the abundance of resources available to physicians to add to their medical knowledge, a parallel wealth of tools is needed to enhance our profession's clinical reasoning. We invite you to utilize, participate, and contribute to our collective journey as we use the ECR series to help in learning *how to clinically reason*.[6]

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SGIM

BREADTH

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truth on which all religions agree is that human beings are flawed and unfinished. In this context, the 20th-century model of "have disease, take pill, kill something"[2] just doesn't cut it. Nobody can be cured of the human condition.

Faced with increasing complexity, the impulse to simplify, to compartmentalize, to break people and problems down into more manageable components comes naturally. But generalists resist reductionism. Patients require generalists to make them whole again.

To celebrate the work of generalists, the Forum is launching a new, narrative feature called "Breadth." If you'd like to share a story about the virtues of generalists—whether from the wards, the clinic, the health policy arena, research, or even from the wilderness beyond medicine—please send it to Gaetan.sgro@gmail.com.

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FROM THE EDITOR

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dissemination and discussion on *Forum* content. We will also explore the feasibility of using enhanced mobile messaging to highlight *Forum* articles. Featured articles, particularly those dealing with health policy, may have links imbedded in relevant text to ease posting on social media sites as well as links inviting discussion with the author and other members following publication. New content ideas include regular articles on medical education research where SGIM members involved in medical education research and innovation can publish their ideas and invite discussion through the SGIM Web site and GIM *Connect*. We will also include narrative and literary pieces from our multi-talented members. Theme issues devoted to access and disparities and also interprofessional education and clinical care will highlight the work engaged in by many SGIM members. For example, this issue of *Forum* reflects the diverse interests and activities of SGIM members with articles on career choice, integrating behavioral health in primary care, and critical thinking.

Since beginning my primary care residency 30 years ago, my connection to SGIM and academic general internal medicine has never felt more important. The collective experience of the clinicians, educators, and researchers in the Society as well as the consistent commitment of the Society to patients will serve us well as we navigate these uncertain times. *Forum* will continue to evolve as an important voice for the Society's membership. I hope you will join in on the chorus.

SGIM

PRESIDENT'S COLUMN

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maintaining unrestricted reserves that would cover six months of operational expenses. Maintaining healthy reserves is important as it allows the Society to keep functioning even in the face of a major interruption in revenue (such as the cancellation of an annual meeting). The reserves are also a source of funding for major capital expenditures, such as new office space or an upgrade to computer systems. The Society also has restricted reserves that contain funds to support endowed awards and grants that the Society distributes.

Each year, an annual operating budget is developed by the senior staff and the SGIM finance committee, and approved by Council. The budgeting philosophy historically has been a conservative one, which is appropriate given that there can be fluctuation in income that can be difficult to predict associated with the annual meeting and with memberships. Most years, a budget surplus exists at the end of the year (ca. 3% of the overall budget or less), which is directed towards building reserves and supporting activities in the following budget year. Recently, the Council and staff have adopted the philosophy of developing three-year budgets, allowing for better long-term financial modeling and a clear picture of what is needed to preserve the Society's financial health.

Table 2: SGIM 2016 Expenses

Expenses		
Staff expenses	$1,276,404.00	43%
Annual Meeting	$733,704.00	25%
Operations	$499,799.00	17%
JGIM	$466,560.00	16%
Contract offsets	$(259,316.00)	-9%
Committees	$233,308.00	8%
Newsletter	$22,359.00	1%
Officer's Allowance	$1,204.00	0%
Total expenses, 2016	**$2,974,022.00**	**100%**

Table 2 outlines the Society's expenses in 2016: Staff expenses constituted nearly half of the budget, along with expenses associated with the annual meeting (25%), operations (17%), and JGIM (16%). Committees accounted for 8% of overall expenses, nearly 2/3 of which supported the Health Policy Committee. "Contract offsets" refers to funds associated with specific grants or contracts, and are included in the expense column to account for the fact that they are associated with specific staff activities.

Securing additional revenue for the Society would be desirable for multiple reasons. In this period of substantial uncertainty in health care generally and in academic medicine in particular, the Society can play an important role in expanding the already outstanding suite of career development services and other resources it provides to its members. In addition, our current capacity for effective communication both within

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the Society and to outside stakeholders is limited. Finally, as might be expected with a Society of more than 3,000 bright, academic general internists, we have suffered as a group from chronic over-commitment that has stretched our outstanding staff in ways that are not sustainable. While part of the solution to our over-commitment involves sharpening our focus, securing sufficient resources to have an appropriate match between our programs and our level of staff support is important. Finally, additional resources would allow us to attract more associate members, a group that will be the lifeblood of the Society going forward. While SGIM's associate membership fees are reasonable, students and residents can join ACP for free.

After carefully reviewing historical trends in membership dues and meeting fees, and benchmarking our costs relative to competing membership associations, the Council has concluded that securing additional revenue through increasing dues and fees would be undesirable. Therefore, for the upcoming year, membership dues and meeting fees will remain essentially flat. Securing additional revenue for the Society will be a major focus of our new CEO. SGIM members can expect to see several new programs related to securing additional revenue come online shortly, such as an expanded development and bequest initiative. Pursuing additional grant funded activities, while appealing on the surface, has several complexities. Oftentimes, there is not a good match between the grant funds provided and the effort required. Plus, SGIM does not want to be in the position of inadvertently competing with its members for grants.

Revisiting our approach to external funds will be an important element of a plan to secure additional revenue for the Society. The topic of external funds has been a complex and controversial one for our Society. *One point I want to clearly emphasize at the outset, however, is that Council has no intention of deviating from the spirit or the letter of our Society's current external funding policy.* This policy was the product of what many long time SGIM members would describe as the most contentious issue in SGIM's history, one that threatened the very existence of the organization itself. Of particular concern was the degree to which the Society should accept external funds from for-profit (or not-for-profit) entities related to a specific diseases or specific pharmaceuticals, medical devices, or diagnostics, which the current policy prohibits. The Society also wrestled with the broader issues of dependence (the proportion of the Society's budget derived from external funds) and conflicts of interest. The Policy on Acceptance and Disclosure of External Funds was originally approved in 1994, followed by several processes of revision and amendment until the current policy was approved in 2006. I would encourage all members to review the current policy in its entirety, which can be accessed at https://tinyurl.com/SGIMExternalFunds.

Importantly, the policy not only outlines types of external funding that would be unacceptable (such as earlier described) but also it sets clear limits for the proportion of the Society's overall revenue from external sources (see Table 3). Our two current sources of external funds (UpToDate and the Career Fair) fall well below these limits. For example, the policy limits all combined external funds to 33% of SGIM's operating budget. Together, UpToDate and the Career Fair constitute 7% of the total operating budget ($205,077/$2,974,022).

Also noteworthy is the evolution and deepening of the literature addressing the issue of conflict of interest that has taken place in the decade since 2006 when SGIM's External Funds policy was last updated. Those interested in this issue should review "Conflict of Interest in Medical Research, Education, and Practice," the outstanding National Academy of Medicine report published in 2009. The report notes that "the central goal of conflict of interest policies in medicine is to protect the integrity of professional judgment and to preserve public trust rather than to try to remediate bias or mistrust after it occurs." It describes disclosure of these financial relationships as a "critical but limited first step" and encourages organizations to adopt strong policies addressing these conflicts. Seen in this light, the SGIM External Funds Policy was ahead of its time!

Over the next year, we will undertake a Society-wide dialog on strategies to increase revenue while remaining true to our core values, which will begin as soon as our new CEO is in place. In the meantime, feel free to share your thoughts on this topic with me directly at thomasg@uw.edu. I hope every member will contribute to the critical discussion soon to come on this important issue.

SGIM

Table 3: External Fund Limits

Source of External Funding per Fiscal Year	Cannot Support More Than:
Combined external funding (all non-member revenue)	33% of SGIM's operating budget
Combined funding from healthcare-related for-profits	10% of SGIM's operating budget
Single healthcare-related for-profit	5% of SGIM's operating budget
Single non-healthcare-related for-profit	15% of SGIM's operating budget
Single non-profit	15% of SGIM's operating budget

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attestation that the case is completely de-identified if consent was not obtained). Avoid storage on cloud devices, instead utilizing your institution's secure servers. Finally, never share patient information or images on public social media forums such as Facebook! (To note, Figure1© employs strict patient protection steps, including patient consent forms and face detection software that automatically blocks out potential identifying features.)[5]

Just as every case has teaching value in its presentation, consider that any case may have teaching value in its imaging—photographs, EKGs, radiographs, etc. The value of a teaching case represented by an image may be uniquely poised to engage mentoring physicians with their millennial learners. As Ansel Adams indicated, a picture is more than just a picture. The following lists our favorite venues for clinical image submissions.

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SGIM

Clinical Image Venues

Peer-reviewed, Indexed in MEDLINE

Journal & Article Category	Word Count	Max # Authors	Patient Consent?	Miscellaneous
Journal of General Internal Medicine (JGIM)—Clinical Image	<200	3	Journal-specific form if photo contains identifiable information	First or senior author must be current SGIM member
New England Journal of Medicine (NEJM)—Images in Clinical Medicine	150 max "legend"	2	Journal-specific form if photo contains identifiable information	No references
American Journal of Medicine—Images in Dermatology, Diagnostic Dilemma, ECG Image of the Month, or Images in Radiology	<1,500	No limit	No specific forms	Longer write up with required outline: presentation, assessment, diagnosis, management
The Lancet—Clinical Picture	<450	No limit	Journal-specific form if photo contains identifiable information	No references.
Mayo Clinic Proceedings—Medical Images	1-2 paragraphs	2	No specific forms	Minimum 1 image, maximum 8. Each image should have its own caption (<60 characters)
Annals of Internal Medicine—Letters: Clinical Observations	<600	5	No specific forms	Letter to the Editor structured as: Background, Objective, Case Report, Discussion Max of 1 figure.
JAMA—Clinical Challenge	Case presentation: 250 words. Discussion: 500-600 words.	3	*JAMA* Patient Permission may be required	Written with "What would you do next?" question with multiple choice options
Non peer-reviewed, Not Indexed in MEDLINE				
JGIM Web Images	<500	4	Patient consent and copyright forms required	Written with 1-2 multiple choice questions followed by short discussion

CLINICAL UPDATE

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of medical informatics innovations and implementations, as well as board certification through the Practice Pathway.

In closing, computers and information systems will increasingly intertwine into all aspects of health care in order to help manage the escalating complexity of the field. Practicing clinicians seeking added formal training in clinical informatics necessarily have a variety of potential professional training pathways, depending on long-term career goals as well as personal resources like time and finances to commit to such training. Board specialization in Clinical Informatics is fortunately an option for practicing clinicians with existing informatics experience in practice, but the grandfathering period is closing quickly (just extended until 2022). Despite this, the good news is that the field is growing and, as it grows, so do the introspection and feedback needed to improve the certification and training processes. While we have described only two possible training pathways, there may be more options to come in the future. As clinicians, we must either own and drive these processes or be overrun by them. ***SGIM***

** For more information about informatics as a specialty and the American Board of Preventive Medicine's Clinical Informatics Board Certification exam, please visit: https://www.amia.org/applications-informatics/clinical-informatics and https://www.theabpm.org/examinfo-ci.cfm.*

BEST PRACTICES

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illicit drug use at the beginning of a visit by a medical assistant; when the PCP enters the room, they review the collected data and address identified issues.

New team members at the PC sites are key to the PC/BHI implementation at CHA. The new staff consists of a consult/liaison psychiatrist (0.2FTE/5,000 patients), a therapist (0.75FTE/5,000 patients), and a mental health "care partner" (0.5FTE/5,000 patients; an unlicensed bachelor's or master's level professional). The integrated psychiatrist and therapist see patients with mild-moderate symptoms for whom short/moderate-term treatment is warranted, while the care partner performs a variety of roles, including health behavior counseling/coaching (e.g., smoking cessation), care coordination/navigation (for patients with mental health concerns), and proactive outreach for patients with depression. The integrated therapists and care partners have time available for "warm handoffs" for patients in need. The care partner reviews challenging cases with the clinic's integrated psychiatrist and then feeds information back to the PC team—adding to clinic-wide learning while directly helping patients.

At CHA, the most significant problems relate to screening processes and workforce. Building new routines into clinic workflow has been challenging and has required multiple rounds of training and supervision at every site. The care partners, whose efforts are central to ensuring buy-in from primary care staff and filling in gaps in patient care, provide services which are unbillable; thus, significant institutional commitment and vision is essential for sustainability. CHA is optimistic that this system will improve patient care in a cost-effective manner; early results show promising effects on local collaborative system functioning and PCPs' knowledge about local MH/SU care.

Third, UNC Internal Medicine's Ambulatory Care Center Practice (UNC IM) is a hospital-based, safety-net academic primary care clinic in North Carolina. More than 100 providers and many staff care for more than 12,000 underserved patients per year. Since 2008, UNC IM has integrated mental health into its primary care setting via screening, treatment algorithms and a depression care program. Screening began first in people with diabetes and then extended to all new patients with annual rescreening. Licensed practical nurses (LPNs) and Medical Assistants (MAs) administer the PHQ2 and PHQ9 and clinicians initiate algorithm-based care which includes medication management and, as needed, referral to the LCSW DCM (1 FTE [0.4 FTE/5,000 patients]) and/or medication or diagnostic assistance from our onsite psychiatrist (0.1 FTE [0.04 FTE/5,000 patients]) who bill for their services. Patients with severe depression (PHQ9>15) return at 1-month intervals and with moderate depression (PHQ9>9) return at 3-month intervals to their provider until their PHQ9 scores improve through medication adjustment, counseling referral and support. Pre-health profession college graduate "care assistants," funded by UNC's Chronic Care Management program (CCM), extend our care by interval phone calls to severe patients to troubleshoot issues associated with medication adherence and facilitate follow up appointments. Residents, attendings, and staff receive annual case-based training on depression screening and treatment algorithms, suicide assessments and anxiety inquiry and treatment algorithms. The UNC IM clinic uses a PHQ "10" in which a follow up question about active suicidal ideation is asked if question 9 (suicide) is positive. The P4 Suicidality Screener is used to further clarify and assess suicidality risk and initiate protocols for determining the need for hospitalization.[6] Residents have contributed via quality improvement projects to enhance our algorithms. In addition, the team incorporated a similar process for anxiety care using the GAD7 as a screening tool, now in its second year. Medications are offered by PCPs and patients may be referred

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plasma levels, thus toxicity can occur even at recommended therapeutic doses. More often severe side effects occur in the setting of intentional overdose like medication abuse or suicide attempts making this patient's presentation atypical. Patients who have seizures associated with doxylamine can remain seizure-free in the future as long as they avoid taking doxylamine.

This patient's history is also significant for an atypical shoulder dislocation; posterior shoulder dislocations are rare and are responsible for less than 5 percent of all shoulder dislocations. Approximately 15 percent of posterior shoulder dislocations occur bilaterally. Posterior shoulder dislocations are typically caused by seizures, trauma, or electrocution. Seizures are the cause of 78 percent of reported bilateral posterior shoulder dislocations. Posterior shoulder dislocations rarely involve neurovascular compromise; however, the glenolabral and capsular injuries can lead to shoulder instability and increased risk for future dislocations. Diagnosing posterior shoulder dislocations can be difficult since frontal radiographs initially miss approximately half the dislocations. Sometimes, patients with late presentations complain of decreased range of motion in their shoulders and can mimic adhesive capsulitis. Bedside ultrasound may be used for diagnosis and CT imaging can assist with diagnosis or assessment of damage to the humeral head or glenoid.

Our patient also suffered greater and lesser humeral head tuberosity fractures (figures 1 and 2). Two part humeral fractures are typically associated with falling onto an outstretched hand, which is more common in elderly patients with osteoporosis. However, our patient had isolated tuberosity fractures, which are more frequently associated with dislocations or direct trauma to the shoulder. Non-displaced or minimally displaced fractures are usually treated conservatively with typically good outcomes. Displaced fractures can be treated surgically. Other injuries associated with posterior shoulder dislocation include humeral surgical neck fractures, labrum injuries, rotator cuff tears, and reverse Hill-Sachs lesions. The patient's fractures are consistent with his history of dislocated shoulders from his seizure.

Left comminuted displaced fracture of the left humeral head involving the lesser tuberosity

While the patient only took one tablet of doxylamine, his history suggests that he is sensitive to this medication. His severe muscle cramps associated with his first dose was indicative of either rhabdomyolysis or a possible seizure. The second time he took the medication, he had a combination of findings consistent with tonic-clonic seizures. He was not taking any other medications that have known interactions with doxylamine. The patient's history and presentation are most suggestive of a doxylamine-induced seizure that caused bilateral posterior shoulder dislocations and subsequent bilateral humeral tuberosity fractures. He was advised to avoid doxylamine in the future. The patient underwent a tertiary trauma examination that did not reveal any further injuries. Orthopedic surgery recommended conservative management and per occupational therapy's recommendation, the patient was discharged to his friend's home for a few weeks to recover. He worked with outpatient physical therapy and, within four weeks, had returned to work. He resumed his normal activities, including cycling, within two months, and reported a full recovery from his injuries with no recurrence of seizures.

Take Home Points:

- Doxylamine toxicity is associated with seizures and rhabdomyolysis and can occur at any doxylamine plasma level;
- Posterior shoulder dislocations are rare (2-4% of shoulder dislocations); and
- 78% of bilateral shoulder dislocations are attributed to seizures.

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to the LCSW for Cognitive Behavioral Therapy and Mind Body Skills training. This year UNC IM added annual screening for alcohol misuse with the AUDIT and associated algorithms for counseling, medication and and referrals for substance care.

Initial challenges for UNC IM's program were provider discomfort and lack of knowledge about providing mental health care. However, providers now feel confident after training. Other challenges include longer than optimal wait times for counseling and psychiatry, finding affordable, long-term psychotherapy for patients in need and making sure that suicide assessments are completed. Another challenge is that despite enhanced teaching, providers still struggle to transition patients from benzodiazepines to safer anti-anxiety medications. Some successes include the use of pre-health profession care assistants, which has greatly aided in entering the PHQ9s and GAD7s into the electronic health record as well as performing phone follow-up for severely depressed patients and for those with missing data. In addition, more than 50 percent of patients diagnosed with depression experience a drop of 5 or more points on the PHQ9 at minimal cost per patient. In fact, UNC Physician Associates incorporated UNC IM's model of Depression Care and spread it throughout the health system.

As highlighted above, three unique health systems in varying regions of the United States demonstrate that integrating behavioral health services into primary care settings is a feasible and effective way to increase access to mental health and substance use care for patients. Key components for success are universal screening for mental illness and substance use disorders, co-located and collaborative mental health providers, use of care extenders for care delivery, a team approach to care, and an algorithmic, stepped approach to behavioral health treatments. Challenges include designing screening protocols, inconsistent communication between providers, variable adherence rates, long wait times and variable provider comfort with mental health treatments. Despite the challenges faced, patients in these integrated programs receive improved access to behavioral health services and very effective, efficient, and coordinated mental health care.

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