

PERSPECTIVE: PART I

CHOOSING STORIES OVER SCREEN TIME

Zachary G. Jacobs, MD

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According to a recent study in *JAMA*,¹ first-year residents in internal medicine training programs spend surprisingly little time face-to-face with their patients. Over a three-year study period at six different U.S. teaching programs, researchers found that, on average, interns spent just three hours per 24-hour period on direct patient care in the hospital. Meanwhile, indirect care accounted for two-thirds of their time, including more than 10 hours interfacing with the electronic medical record (EMR). That's nearly half of every day spent in front of a computer.

As a practicing hospitalist and a recent graduate of an internal medicine residency program, this comes as little surprise to me. Much of my daily routine takes place in front of a screen, often at the expense of time with my patients. As much as I would love to spend my entire workday at the bedside, the fact is that the EMR demands so much of my attention that at times it feels like I am drowning in unfinished documentation, unplaced orders, and best practice alerts. And for someone who chose a career in healthcare for the stories—the opportunity to connect with patients by passionately receiving their narratives—this, for me, is a significant source of dissatisfaction.

And in this I'm not alone.

In a 2019 survey of more than 15,000 U.S. physicians, Medscape found that 44% reported feelings of burnout.² When asked about major contributing factors, the number one cause, cited by nearly two-thirds of respondents, was “too many bureaucratic tasks [such as] charting or paperwork”. And given that 96% of hospitals in the United States have now adopted EMRs,³ it is clear here that “paperwork” really means *screen time*.

And is this really so surprising? Physicians chose this career path not for the money, the renown, and certainly not to spend half their day staring at a computer screen. They chose it instead to take care of patients.⁴ To help relieve suffering, not by clicking a mouse 4,000 times a day⁵ (the average number of clicks during a busy 10 hour shift in the ER), but by sitting in front of another human being, looking them in the eyes and asking “how can I help?”. By listening intently and empathically to their story, something that simply cannot occur while glancing over the top of a computer monitor.

I don't mean to imply that EMRs are worthless. In many ways they make my job easier, and if given the option, I certainly wouldn't choose to go back to the days of paper charts. But there must be a middle ground. Doctors cannot accept it as status quo that they will spend more than three times as many hours in front of a computer as they do in front of their patients. It's no wonder that nearly half of U.S. physicians are burnt out; they are being forced to work in an environment in direct opposition to their mission of serving patients—an environment that not only discourages compassion but also precludes it. That is a system in which nobody wins. It's a system that needs to change.

We must strive to create an EMR that works *for* doctors, not against them. One that is designed from the ground up for practical clinical use. One that improves patient care rather than hinders it. We must find a way to get physicians back to where they belong, back to where they all want to be: at the bedside, delivering compassionate care and connecting meaningfully with their patients. We must give them the tools and the opportunity to treat

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FROM THE EDITOR

CONSIDER THIS...

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

On September 10, 2019, the Society sent out an e-mail to the general membership soliciting applications for the new *Forum* editor in chief for its next three-year term, May 2020-May 2023. I know what you're thinking. Has it been three years already? Yes, it has. For me, serving as the *Forum*'s editor in chief has been a rewarding and energizing experience, one that has allowed me to serve the Society and the field of academic general internal medicine in a meaningful way. Receiving and reading the creative work from our members and preparing them for publication exposes me to the richness of their ideas and thoughts. The deadline for applying for the position is November 18, 2019. The announcement calls for senior and new members alike to consider serving. SGIM is also encouraging pairing of editors where more senior members mentor younger members. The role of editor in chief is made easier for those of us who have been part of the society and academic general internal medicine long enough to be able to tap into a network of potential authors around the country. I can think of no better way to serve the society as well as mentor a young faculty member. E-mail me with any questions if you are interested.

In this month's *Forum*, we continue President Karen DeSalvo's focus on the social determinants of health with an update from the National Academy of Medicine on "Integrating Social Care into the Delivery of Health Care." We have a conversation about burnout, a report on changes to the USMLE from the education committee, and articles on network medicine and the next LEAHP year. In addition, a bewildering case of bacteremia, a plea to get physicians back to the bedside and away from the dreadful EMR, and developing leadership skills in recognizing implicit and explicit bias, and inequity at the workplace.

If that line up doesn't make you want to be editor in chief, then I don't know what will.

MOVING MEDICINE UPSTREAM

Karen DeSalvo, MD, President, SGIM

... there is a great deal of practice and research activity in social determinants, meaning more and better science is coming out every day. It seemed clear that national funders, like the NIH or PCORI, have an important role to play in not only funding science but also helping to develop investigators with a new set of methodological skills needed for this work. In addition, it seems essential that this science is done with, and not for, people and communities. This is the kind of research where SGIM members excel, and I would love to see that we are at the forefront of partnering with healthcare systems engaged in practice innovation so this knowledge can become part of the peer-reviewed literature.



In many ways, the social determinants of a health “movement” gets medicine back to our roots. Though we can certainly trace some of the philosophical underpinning back to Hippocrates, we don’t need to go that far. Rudolph Virchow, German physician of the 1800s, said “Medicine is a social science, and politics is nothing else but medicine on a large scale...if medicine is really to accomplish its great task, it must intervene in political and social life.” The modern movement around addressing the social determinants of health gained a guiding framework and set of concrete recommendations to provide a roadmap for the healthcare system in September 2019 when the National Academy of Medicine published a report, *Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation’s Health*.¹

It has been one of the highlights of my career to serve on the committee drafting the report. The group included individuals with varied backgrounds in medicine, social work, technology, government, insurance, research, and equity work. We were ably led by Dr. Kirsten Bibbins-Domingo, an SGIM member, who will present the findings at our 2020 Annual Meeting in Birmingham. Like most general internists, she navigated the intricacies of this complex process and our varied perspectives with the same grace that general internists show when navigating the care of a complex patient. We were joined by other primary care specialists, social work professionals, health policy experts, and researchers. Some of my colleagues from the panel, including other SGIM members such as Dr. Lisa Cooper, who also served on the committee will be part of a special symposium *continued on page 12*

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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.

MITIGATING BIAS AND DISCRIMINATION FROM HEALTHCARE LEADERSHIP

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The views expressed within are of the authors and do not necessarily represent the views of the National Heart, Lung, and Blood Institute; the National Institutes of Health; or the U.S. Department of Health and Human Services.)

Introduction

While initiatives to diversify the profession of medicine have had some success at the medical school level, the picture is still fairly bleak in academic and leadership where African American, Hispanic/Latinx, and women physicians are under-represented at senior ranks levels in nearly all specialties, and in leadership positions as department chairs.¹ Additionally, a pay gap exists across gender and race in U.S. health care as women and African-American physicians report lower incomes compared to peers.^{2,3} These salary discrepancies exist despite the Equal Pay Act of 1963, Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act of 1967, and Title I of the Americans with Disabilities Act of 1990 prohibiting compensation discrimination on the basis of race, color, religion, sex, national origin, age, or disability. Maternal duties and sexual orientation also continue to be reasons for discrimination and bias against physicians—more than 77% of physician mothers report either gender or maternal discrimination including pay discrepancies and not being involved in administrative decisions.² In a survey of LGBTQ physicians at an academic medical center, 35% admitted not disclosing their sexual orientation/gender identity to a colleague or superior due to fear of discrimination or harassment,⁴ poor access to LGBTQ mentors, and poor acknowledgment of LGBTQ scholarship.⁵

Based on a real case, this article shares resources for physicians who experience inequity in compensation and growth opportunities at their institution and for leadership to develop an all-inclusive and fair work en-

vironment and institutional culture. The resources have been compiled from data and information available at the U.S. Equal Employment Opportunity Commission (EEOC), Women's Bureau of the US Department of Labor, Association of American Medical Colleges (AAMC) and The American Association of University Women (AAUW).

While physicians need to develop skills in negotiation and self-advocacy, leaders in health care need skill development in recognizing implicit and explicit bias, and inequity at the workplace.

Case: A female physician accepts a job in an academic internal medicine program after completing residency training. During the interview process, she is informed of her salary which is on the lower side of the regional median salary in her specialty. However, she is informed by her future boss that this salary is the standard for a physician hired with her level of experience at their institution. Three years later, in preparation for a discussion about a raise in her salary, she talks to her colleagues about their salaries. She learns from a male colleague who was hired around the same time as her, with the same credentials and job description, that he was hired earning \$50,000 more than her. A simple calculation reveals that even after periodic salary increases, starting with \$50,000 less becomes more financially significant over time. This will impact her total compen-

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sation, including her retirement benefits. She is wondering if she experienced gender-based discrimination.

Best Practices for Physicians

While we strive for an equitable work environment exemplifying transparency and fairness in compensation and opportunities for career growth regardless of gender, sexual orientation, ethnicity, or negotiation skills, physicians need to hone skills in self-advocacy, developing career goals, and strategies to achieve those goals. While the support of a mentor is valuable throughout one's career, it's especially valuable for early and mid-career physicians to find mentors who can support and guide them through difficult situations. As these topics are gaining attention, numerous academic medical societies offer workshops and seminars on these topics at their regional and national scientific conferences. To research a target salary, online resources—such as Doximity Career Navigator or salary calculator available on Health e-Careers—can help find the mean salary based on one's years of experience at state and national level.

The following is a list of reading resources including books and online blogs to hone negotiation and self-advocacy skills:

1. AAUW. 4 tips to negotiating for the salary and benefits you're worth. <https://www.aauw.org/2017/07/19/negotiating-salary-and-benefits/>.
2. AAMC. A guide to prepare for your first job in academic medicine. <https://www.aamc.org/download/483868/data/toolkit-firstjob.pdf>.
3. ACP Hospitalist. Negotiation: A key skill for women hospitalists. <https://acphospitalist.org/archives/2013/07/conference.htm>
4. Stone D, Patton B, Heen S. Difficult conversations: How to discuss what matters most?
5. Babcock L, Laschever S. Women don't ask: Negotiation and the gender divide.

Legal action: If an employee believes that an employer has violated the Equal Pay Act, one can either file a charge with the EEOC or file a lawsuit in court. Under the Equal Pay Act, the employee is required to file a lawsuit within two years of having received the discriminatory pay.

Best Practices for Leadership in Health Care

An all-inclusive workplace environment has been shown to improve employee satisfaction, which in health care translates into improved physician satisfaction, reduced work stress and burnout, reduced physician turnover, and better patient outcomes. Therefore, leaders in health care should strive for developing an all-inclusive workplace environment that exemplifies equal opportunities for professional advancement for all employees regardless of their gender, sexual orientation, ethnicity/race, religion, physical abilities and caregiving/maternal responsibilities. In addition to developing a culture and climate which promotes transparency in compensation benefits and allows all physicians access to career growth opportunities, healthcare leaders should take actions to promote diversity in leadership and enhance efforts to retaining faculty belonging to gender, ethnic and racial minorities. Additionally, administration in health care should consider an inventory of facility resources to ensure that the facility reflects an all-inclusive environment including, but not limited to, gender-neutral bathrooms, lactation stations, and prayer/meditation areas.

Suggested Resources for Leadership:

1. National Institutes of Health (NIH) Scientific Workforce Diversity Toolkit. <https://diversity.nih.gov/toolkit>.

2. Cook Ross and the Association of American Medical Colleges. Unconscious Bias Train-the-Trainer Program for Healthcare Professionals.
3. Banaji M, Greenwald A. Blind spot: Hidden biases of good people.
4. AAMC. Group for Diversity & Inclusion (GDI). <https://www.aamc.org/members/gdi/>.

Conclusion

While physicians need to develop skills in negotiation and self-advocacy, leaders in health care need skill development in recognizing implicit and explicit bias and inequity at the workplace. The culture and climate of the organization must reflect transparent policies and procedures that apply to all employees equally.

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BURNOUT AS AN OCCUPATIONAL PHENOMENON: OUR CONVERSATION

Tiffany I. Leung, MD, MPH, FACP, FAMIA; Gaetan Sgro, MD

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Inspired by *The New York Times*' opinion columnists who write The Conversation, an informal and brief dialogue on important issues of the time, we had our own conversation about physician burnout. The following exchange has been lightly edited for readability and flow.

Gaetan: Good morning, Dr. Leung. Or is it “good afternoon” in your part of the world? I really appreciate that you shared the recent *New York Times* Op-Ed by Dr. Richard Friedman in response to the World Health Organization's decision to upgrade burnout from a “state” to a “syndrome”.¹ As Dr. Friedman points out, this is a complex issue that's particularly relevant to us as physicians and as educators, so I'm glad we're having this conversation.

Tiffany: Thanks, Gaetan. In a time when there is virtually a global clamor in medical communities everywhere about the daily burdens and challenges that doctors face, the WHO's declaration seems positive. At least these are the sentiments I gathered from the comments in reply to Dr. Friedman's Op-Ed. So, I get his position: it's great that we can better measure burnout now, but at the same time, we should be prepared to avoid mislabeling difficult experiences and feelings that could be normal as the syndrome of burnout. What do you think—are we just complaining too much?

Gaetan: I don't think we're complaining too much. In some ways I don't think we're complaining enough. I do worry that shining a spotlight on burnout creates availability bias and may lead to misdiagnosis of both normal stress and depression, but I am more concerned about the root-causes of medical malaise than I am about the labels themselves. Diagnosing burnout tends to have the strange effect of focusing attention on the individual rather than on the system in which he or she practices. If a large percentage of patients treated at the same hospital developed a similar constellation of signs and symptoms, we wouldn't view those cases in isolation and we certainly wouldn't propose that each patient treat him or herself with a course of lifestyle modification. So why is it our impulse, when faced with growing numbers of struggling physicians, to prescribe mindfulness and resilience training?

Tiffany: I agree with you, it's not unlike a variety of other psychological disorders that have definite socio-cultural, or biopsychosocial, components to them. To prescribe mindfulness and resilience training then is but a band-aid treatment for a complex problem. It helps to have these tools available, but isn't it better to prevent burnout and its potential consequences before it starts in the first place? I recently read a metaphor for prevention that could be applied and extended here:² if people were literally falling off a cliff repeatedly, sustaining injuries, experiencing reduced quality of life, and creating greater direct and indirect costs for society and our healthcare system, wouldn't we prefer to take a public health approach and put up a fence and warning signs at the cliff's edge, and adopt other interventions to prevent the bad outcomes?

Gaetan: I like it. “Upstream doctoring”³ for doctors. It strikes me that one of the cardinal features of burnout is depersonalization, and if you asked me to name the biggest trend in healthcare today, I'm afraid that would be it. Although my physician scientist colleagues are brimming with excitement over the prospect of increasingly personalized medicine, the business of healthcare seems to be proceeding in the opposite direction—replacing touch with technology and faces with screens. I recently switched to a new primary care doctor and guess who greeted me when I arrived to check-in? A kiosk. Is it any wonder that physicians feel a sense of depersonalization when the system is literally replacing persons with machines?

Tiffany: You've raised a really interesting intersection of technology and humanism in medicine, where there seems to be a rising suspicion of technological applications replacing human interactions. I've also done check-ins at a kiosk, walking directly to a waiting room without any human interaction, but I think what matters most is that conversation between patient and physician. Does a video encounter convey enough verbal and non-verbal information to develop a trusting relationship and maintain the humanistic components? As a N-of-1, I can say from my experience at a prior job where I did predominantly video visits, I definitely felt like the interactions were more depersonalized and distant. Did it lead to burnout?

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Not by itself, but it was one factor in an accumulation of contextual work conditions that did. Whatever the acceptable label is, burnout or otherwise, it's a consequence of repetitively injurious and persistent systemic factors that lead to depersonalization, exhaustion, and a reduced sense of accomplishment.

Gaetan: Wow. Well said. So where does that leave us? I don't want to just throw up my hands and cry "systems foul." While I clearly don't think the solution lies in telling (or teaching) physicians to "buck up," I do think we have more agency than we realize, and that we ought to exercise it on an individual level while simultaneously advocating for broader reforms. Speaking of advocacy, I was heartened by Danielle Ofri's recent *NYT* Op-Ed, "The Business of Healthcare Depends on Exploiting Doctors and Nurses"⁴ mainly for her willingness to speak frankly about the deep cynicism at the heart of the healthcare industry. Just as altruism has made doctors and nurses vulnerable to exploitation, politeness and professionalism have too often muffled our voices. I'm glad to see that's changing. I also want to break the cycle of "wellness retreats," which allow employers to nod at wellbeing without having to implement meaningful changes, and which pacify physicians while signaling that, on most days, we're still expected to go with the flow. I'm tired of going with the flow. Individually, I do think there are ways to limit exposure to those "repetitively injurious systemic factors." I can't ditch the electronic medical record, but I can spend less time obsessing over notes or guessing at the thought processes of consultants in the machine (I'm a big fan of office drop-ins). I can't ignore the quality metrics and institutional priorities that conflict with my values, but I can limit the extent to which they influence my practice. Most days, I can still find time to slow down and prioritize the personal interactions that make my work meaningful.

Tiffany: Completely true. It's encouraging to see that there's a growing recognition of the variety of factors at individual and institutional levels that contribute to this phenomenon of [insert *burnout* or other suitable term of choice here]. We've covered quite a lot of ground here! I'm reminded of the National Academy of Medicine's conceptual model of factors contributing to physician well-being.⁵ Without delving too deeply into theory and philosophical underpinnings, it truly is helpful to organize and unify how we think about such a large-scale problem, so that we can work together to meaningfully sustain ourselves and the physician workforce going forward.

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PERSPECTIVE: PART I

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their patients as humans again. To shut their laptops and open their hearts. To choose stories over screen time.

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HOW NETWORK MEDICINE CAN DRIVE HEALTHCARE SYSTEMS REDESIGN

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Networks in medicine are interpreted differently in different health systems. In American health care, the term might conjure identifiable—and perhaps loathed—insurance networks, which dictate resource utilization for patients and doctors. In the Netherlands, network medicine is viewed as the next evolution of healthcare system redesign, with one of the eight major academic hospital systems declaring this year that their strategic aim is to become an “academic medical network.” But what exactly does this mean?

In short, network medicine is a healthcare system configured like a web of services: different strands in the web can be pulled, offering the appropriate services at the right time by the right types of physicians and healthcare professionals. At the center of this network stands a single patient.¹ Here, we offer a primer on network medicine and describe its actualization in outpatient general medical practice redesign in the Netherlands.

What Is Network Medicine?

In science, *network medicine*, which comes from network-based thinking, originated from objectives to better understand and address the complex relationships between human health, disease, and other factors, such as genetics and social determinants of health.² This includes, for example, biological (e.g., metabolic, regulatory, RNA networks), disease, and pharmacological networks, which are understandably complex.² Network medicine concepts offer an important approach for medical research and in life sciences: by applying mathematics, computational methods, and vast sets of data, new scientific discoveries become possible. However, associated risks and biases of such approaches also can result.

Most relatable for the everyday general internist are disease networks. Clinical complexity is our specialty, after all, and we encounter disease networks daily in the form of multimorbidity; when we prescribe, we consider relevant biological and pharmacological networks, seeking to personalize disease risk or complication risk assessments. We also deliver care in increasingly convoluted and bureaucratic healthcare systems. Finally, general internists are experts in understanding how social determinants of health increase our patients' vulnerability to illness and poor health. We are also attuned to

patients' well-being and its connections to social issues, like climate change, social justice, immigration, and other sociopolitical and cultural issues. In the Netherlands, this disease complexity may mean building networks of subspecialty care, in which different clinics and hospitals partner to manage or treat different parts of a patient's care (e.g. regional oncology care).

Healthcare delivery is also influenced by social, technological, information, and other networks. For example, telemedicine and other e-health services create new technological networks that enable patients to remotely connect with their care teams, or for patients to connect with each other. Electronic health records and other devices collect massive amounts of information about patients with virtually limitless possibilities for information exchange. Physicians' social or professional networks, for those who engage in using social media, enable remote connections with colleagues across the globe.

In essence, the ideas of network medicine facilitate a different way of thinking about systems of health and well-being. They offer explanations for healthcare system complexities by mapping—or creating—connections between different parts of various networks, and they open possibilities for new connections, communities, and opportunities.

Network Medicine as a New Model of Care

How does network medicine translate to policy and practice? The Netherlands has a well-developed first-line healthcare system: each individual has access to a general practitioner, and access to hospitals, including general hospitals and academic tertiary care centers, is possible with a general practitioner's referral. Recently, the Dutch Federation of Medical Specialists (FMS) published a vision paper, “The Medical Specialist of 2025,” on how network medicine can evolve further, including how the medical specialist's role, including that of a general internist, changes within that network.³

In the FMS vision of network medicine, the aim is to “deliver the right care, by the right healthcare professional, at the right time and at the right price.”³ It emphasizes cross-disciplinary, transmural care collaboration, with a strong foundation of accessibility to accurate patient

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information and appropriate signals to trigger timely care escalation or referrals. Thus, the medical specialist is matched to the clinical need for their expertise (patient's disease stage or complexity) and patient-preferred or most appropriate platform for care (in-person or virtual).

ParkinsonNet in the Netherlands is another example of network medicine implementation. ParkinsonNet was designed to foster education, communication, and collaboration between multiple disciplines engaged in the community-based care of patients with Parkinson's disease.⁴ Since then, the model is evolving further towards a new design, with the key feature involving specialized training of nurse practitioners to offer first-line services to patients in their homes and communities—the outer spokes of the network—with progression towards a central hub along the inner spokes. Moving towards the inner spokes means engaging more specialized healthcare professionals and care settings, as needed as the patient's chronic condition progresses. This design overlaps with another model, translated literally from Dutch, as substitution.

Substitution refers to the transition of sets of care services from one clinical setting to a different care setting, or tasks are transferred from one health professional to another within the same care setting. The latter is recognizable as the concept of “working at the top of one's license.” In addition, specialty training of nurses or nurse practitioners addresses an issue of scarcity of specialty care, which is a key part of the plan for the new Dutch Parkinson's disease network medicine model. Analogous models for the general internist could be a nurse specialized in diabetes care or a pharmacist who offers smoking cessation services. Penalties for short-term hospital readmissions in the United States might incentivize substitution; for example, a patient with diabetic complications might receive similar or quality care for

lesser cost through a combination of outpatient specialty care and home services, rather than by an acute care hospitalization. Or, a patient who traditionally might be seen for an urgent issue in-person at their primary care physician's office could alternatively be seen through telemedicine urgent care services, which are widespread in the United States. Substitution clearly has benefits and drawbacks depending on its context in certain clinical situations.

Compared to *integrated care* (e.g., chains of care or care pathways), typically more efficiency-driven and condition-centric, network medicine acknowledges system complexity and aims to overcome the managed linearity and uniformity of integrated care that in reality often does not exist. Up to two-thirds of Americans over 65 and more than one-third of Dutch people over 55 have two or more chronic conditions, so providing integrated care for each condition for patients with multimorbidity can quickly become unwieldy and complicated.

The nearest American cousin of a network medicine model could be the *patient-centered medical home neighborhood*, in which the primary care physician is the central contact point and coordinator of care for a patient. The “neighbors” include specialists, hospitals, nursing homes, ancillary care providers, and more, with everyone collaborating to provide care centered on the patient.⁵

From Theory to Application

To achieve the FMS's vision of network medicine, health information technologies play a key supportive role, whether they are data collection devices like wearables or patient-reported outcome measurement platforms, communication or social platforms, advanced analytics, smart medical devices, or artificial intelligence. Information systems are opportunities for innovation, and their integration into a network of care is heavily emphasized as an enabler for seamless and uninterrupted care

across settings and healthcare professionals (i.e. information networks). Essentially, this is a magnification of the *Five Rights* of clinical decision support systems; offer the right information to the right person in the right format through the right channel at the right time in workflow.

In the end, perhaps the label of the care model matters less than the reality of the systems in which we and our patients live and work. Healthcare delivery is still a humanistic service and healthcare systems can always do better in improving outcomes and reducing unnecessary costs. Network medicine, as conceived and driven in the Dutch context, offers yet one more model of care to consider, and if it delivers on its promises to improve patient outcomes, efficiency and satisfaction of care provision by physicians and healthcare professionals, and without increasing costs, then it is worth a closer look.

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2020: THE NEXT LEAHP (LEADERSHIP IN HEALTH POLICY) YEAR

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In 2017, SGIM launched the Leadership in Health Policy (LEAHP) program, a first-of-its kind career development initiative to train the next generation of internist health policy leaders to advocate for the Society’s core missions in clinical practice, education and research.¹ As the LEAHP program opens for applications for the 2020-2021 year, we (a subset of the first two cohorts of the program) would like to reflect on the impact of this program to date.

Through its first two years, 29 SGIM members have completed the LEAHP program, and its scholars have spanned across the spectrum in terms of experience and background, from residents to full professors; from researchers to administrators, clinicians and educators; from long-standing activists to newcomers desiring the training and confidence to enter the policy arena. Through monthly webinars, quarterly journal clubs, half-day seminars at the SGIM national meetings, and continuous self-directed growth, LEAHP scholars have learned (and taught) the essentials of policy-making processes, payment model structures, healthcare reform impacts and advocacy skills.

However, the true core of the program has been mentored policy and advocacy work. Beyond attitudes shifted and knowledge gained through readings and didactics, scholars each worked with a senior SGIM policy mentor throughout the year to complete capstone projects. Scholars followed their own personal topic interests, joined with long-standing core efforts through SGIM’s Health Policy Committee, or built off prior LEAHP scholars’ work. The accompanying figure shows a breakdown of work to date by topic and format:

This facilitated behavior change—overcoming the activation energy needed to lead Hill Day, teaching a curriculum, or collaborating with legislators—has been the deepest value from the LEAHP program, and the critical piece towards the goal of building a sustainable pipeline of future health policy leaders. Direct comments from LEAHP scholars include the following:

“Being part of the LEAHP program has connected me with leaders and experts in health policy with a wealth of experience in a variety of areas. Through conferences, meetings, and seminars, the LEAHP program has greatly deepened my knowledge of health policy and my understanding of how to make an impact in the field. I have had fantastic mentorship and great collegial relationships with my LEAHP cohort.”

“After introducing my healthcare policy curriculum for internal medicine residents as my LEAHP capstone, I will be applying for a grant to develop my curriculum further. I will also be starting a ‘Tallahassee Day’ for my residents. The encouragement of my mentor was instrumental in pushing me to take the program requirements and incorporate this into my academic career.”

“The mentorship and relationships gained from the LEAHP program have allowed me to push the boundaries of what I can do in the health policy and advocacy field – moving from being an educator to an advocate, from passively reading policy proposals to

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Policy/Advocacy projects during first two LEAHP years

Project Deliverable	Number
Meeting workshop or abstract (regional or national)	16
Written publication	10
Local curriculum	10
National curriculum	1
Report to legislator	1
Rule-making analysis and comments to CMS	1



A BEWILDERING BACTEREMIA: AN EXERCISE IN CLINICAL REASONING WITH COGNITIVE AUTOPSY

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(*Discussant in italics)

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A 60-year-old Hispanic man with a history of insulin-dependent diabetes mellitus presented for six days of abdominal pain, nausea, and vomiting.

Broadly, his symptoms can be categorized into two initial diagnostic categories: gastrointestinal etiologies or a gastrointestinal manifestation of systemic disease. The differential diagnosis of gastrointestinal etiologies can be subcategorized by organ, for example: peptic ulcer disease, pancreatitis, small bowel obstruction, biliary obstruction, acute hepatitis. Diabetic ketoacidosis (DKA) or adrenal insufficiency are examples of how abdominal pain and vomiting may be symptoms of a systemic process.

His abdominal pain was diffuse, constant, and exacerbated with oral intake. He denied fever, diarrhea, constipation, melena, or hematochezia. He had been unemployed for one year and was unable to afford his medications. He denied drug use, but reported consumption of 4-6 beers per day. On examination he was tachycardic and mildly hypotensive. On labs, his blood glucose was elevated to 396 mg/dl along with an anion gap metabolic acidosis and elevated blood ketones. Hemoglobin A1C was 14%. His complete blood cell count was remarkable for a mild leukocytosis. Liver function tests were normal. A CT scan of abdomen/pelvis showed nonspecific stranding surrounding the hepatic flexure of the colon as well as distal gastric antrum and duodenum. He was started on intravenous fluids, insulin, and pantoprazole. With these interventions, he reported improvement in his symptoms and his laboratory derangements normalized the following day.

On the second hospital day, he developed a fever of 102°F. His symptoms from admission were improving and he denied new symptoms. His procalcitonin was elevated at 2.14 ng/ml. Other laboratory data remained unchanged, and urinalysis and chest radiograph showed no infection. The following day blood cultures resulted *Klebsiella pneumoniae*. While a gastrointestinal source was suspected, no specific etiology was identified. He was transitioned to oral ciprofloxacin and discharged home to complete a two-week course of antibiotics.

With unexpected shifts in a patients' hospital course it is important to step back and evaluate if the newly identified symptoms were present on admission or if they were directly related to the hospital stay itself (such as a new medication started since admission or a hospital acquired infection). As the patient was in the hospital for 24 hours or less, it is likely that this infection was present on admission, just not evident.

Klebsiella bacteremia can result from infections of the genitourinary tract (e.g., pyelonephritis), pulmonary infections, and the gastrointestinal tract (e.g., cholangitis). These more common etiologies have been excluded as sources for this patient's bacteremia. Interestingly, Klebsiella has been an increasingly recognized culprit of primary liver abscess syndrome (without evidence of associated biliary infection) in the United States. In the community setting, Klebsiella liver abscess syndrome is typically seen in patients with poorly controlled diabetes.¹ Reassuringly, he underwent CT imaging without evidence of biliary dilations or liver abscess, and classic elevation of alkaline phosphatase or other liver function tests are not present. A source is identified in 84% of patients with community-acquired Klebsiella bacteremia, unlike in this case.¹

Two weeks after his initial presentation he returned to the emergency room with subjective fevers, nausea, emesis, and decreased tolerance of his oral antibiotics. He was afebrile and hypotensive requiring vasopressors. Labs now demonstrated white blood cell count of 20.5×10^3 ul, alkaline phosphate of 323 U/L, and mildly elevated transaminases. A CT of the abdomen and pelvis was repeated. The previously reported antral and duodenal stranding was resolved; however, a 7 x 5 cm hepatic abscess was identified (Figure A). Broad spectrum antibiotics were initiated. He underwent CT guided drainage of the hepatic abscess. Culture was positive for Klebsiella pneumoniae.

The recurrence of this patients' symptoms prompting readmission with septic shock could represent antibiotic failure in the setting of resistance, antibiotic intolerance

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Five Categories of Healthcare Activities that Facilitate Addressing Social Needs¹

Activity	Definition	Transportation-Related Example
Awareness	Activities that identify the social risks and assets of defined patients and populations.	Ask people about their access to transportation.
Adjustment	Activities that focus on altering clinical care to accommodate identified social barriers.	Reduce the need for in-person healthcare appointments by using other options such as tele-health appointments.
Assistance	Activities that reduce social risk by providing assistance in connecting patients with relevant social care resources.	Provide transportation vouchers so that patients can travel to healthcare appointments. Vouchers can be used for ride-sharing services or public transit.
Alignment	Activities undertaken by health care systems to understand existing social care assets in the community, organize them to facilitate synergies, and invest in and deploy them to positively affect health outcomes.	Invest in community ride-sharing or time-bank programs
Advocacy	Activities in which health care organizations work with partner social care organizations to promote policies that facilitate the creation and redeployment of assets or resources to address health and social needs.	Work to promote policies that fundamentally change the transportation infrastructure within the community.

sium that will dive more deeply into the report findings and recommendations at the annual meeting.

If you haven’t already, I hope you will take time to watch the video of the September 25th release which you can find at: <http://nationalacademies.org/hmd/Reports/2019/integrating-social-care-into-the-delivery-of-health-care.aspx>.¹ I also hope that you look over the entire report that considers how to integrate social care into clinical practice and the kinds of infrastructure that will be required to facilitate and sustain the work.

The following is a snapshot of what you will find in the report; it is a document grounded in a set of overarching goals for medicine in its work to move upstream to address the social determinants of health:

1. Design healthcare delivery to integrate social care into health care.
2. Build a workforce to integrate social care into healthcare delivery.
3. Develop a digital infrastructure that is interoperable between health care and social care organizations.
4. Finance the integration of health care and social care.

5. Fund, conduct, and translate research and evaluation on the effectiveness and implementation of social care practices in health-care settings.

The report provides a framework for action designed to guide healthcare systems wanting to start the work of addressing the social determinants of health or advance what that are already doing—awareness, adjustment, assistance, alignment and advocacy. These are meant to reflect five complementary approaches for health care to adopt to integrate social care into health care. We found this conceptual framework to capture most of the activity that is already underway or that should be increasingly undertaken and provide some examples (see table).

This includes making and communicating an organizational commitment to addressing health-related social needs and health disparities. Chapter 6 of the report provides guidance for healthcare systems on approaches to address the social determinants of health. Throughout the report, we also provide a number of examples of interventions from the field.

To develop the report, the committee did an extensive review of the

evidence available at the time of our work. We also looked to the gray literature and input from public meetings hosted by the committee. We found that there are many promising practices in the field reflecting significant innovation. The report highlights a number of these innovations. However, early on, it became clear that there is a real need for additional research built upon strong methodological design and evaluation frameworks that allow for spreading and scaling of the approaches.

The need for more evidence to drive practice and policy action is a significant part of our recommendations in the report. Specifically, we recommend that the nation “fund, conduct, and translate research and evaluation on the effectiveness and implementation of social care practices in health care settings, including designs with rapid learning cycles as well as experimental trials, robust evaluation of demonstration projects, development of a clearinghouse containing information on the best and most promising practices for social care integration, and support for comparative research through use of a common core measures reflecting social risk and protective factors.”¹

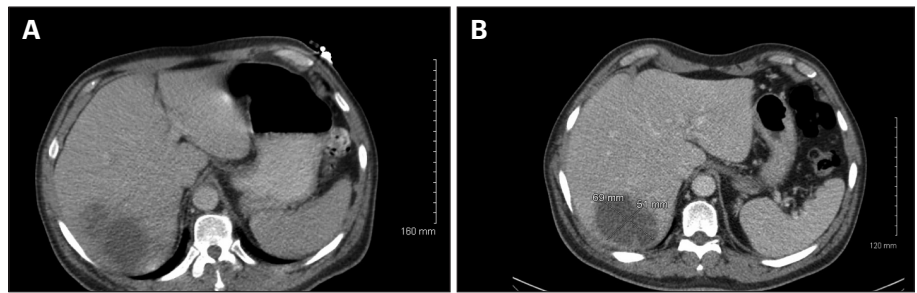
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since discharge due to emesis, or lack of source control (such as an abscess). The repeated CT imaging sheds light on the etiology for his *Klebsiella* bacteremia from his first admission and explains his failure to improve with therapy. It would be helpful to review the CT images from the first admission to evaluate if early signs of abscess were present.

In fact, the images from the first hospitalization did reveal a lesion in right hepatic lobe. While the “conclusion” on the radiologist report only documented the stranding at the gastric antrum and duodenum, within the full report are details of a 4 x 7 x 5 cm lobulated well-circumscribed hypodense lesion felt to represent a complicated or septated cyst (Figure B).

Discussion

Illness frequently follows patterns and clinicians can rely on their compiled knowledge of a condition, termed an *illness script*, to recognize and achieve a diagnosis. In contrast, complex diagnostic dilemmas may result in uncertainty or a delay in diagnosis or treatment. Physicians are encouraged to retrospectively perform a cognitive autopsy of their diagnostic performance following diagnostic inaccuracies.² This works to guide self-feedback while avoiding maladaptive feelings or guilt which may naturally occur with diagnostic error but may impair constructive learning.



([A] Computed tomography imaging with liver abscess within the right hepatic lobe. [B] Review of the images from the admission two weeks prior, the abscess was present and larger. Photos courtesy of the patient.)

In the reflection of this case, we will simplistically review the faulty knowledge, data gathering, and synthesis that led to the delay in diagnosis (see the following table). Errors in synthesis are much more prevalent than errors in data gathering and knowledge combined.³ Unlike errors attributed to systems issues, the interventions needed to mitigate and learn from diagnostic errors are more metacognitive. Examples of interventions include metacognitive training, use of decision support tools to broaden differential diagnoses, and checklists that serve as de-biasing tools. As the table categorizes the cognitive breakpoints impacting the case, the right column highlights how a checklist approach may have prompted better clinical decision making.⁴

Errors in the radiology field are often classified into perceptual (an abnormality is present but not seen)

or interpretive (an abnormality is identified but its importance is interpreted incorrectly).⁵

The radiologist reviewed the initial CT scan with the indication of “a patient with abdominal pain and vomiting.” The way in which a problem is represented can influence the cognitive process, an effect called framing bias. For instance, the images may have been interpreted differently if the indication for testing was instead “a patient with fever, leukocytosis and bacteremia.”

Taking a diagnostic time-out to ask “what are we missing?” may have prompted the clinical team to revisit the patient for a repeated interview and examination, in addition to reexamining laboratory and radiological data. When encountering these situations in the moment, or in retrospect, take a metacognitive approach to enhance one’s awareness

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Utilizing a Checklist Approach to Improve Diagnostic Certainty ⁴

Errors or Events Leading to Delay or Missed Diagnosis Knowledge (Least Prevalent)	Data Gathering	Synthesis (Most Prevalent)	How a Checklist Approach Could Provide Solutions to Achieve Diagnosis
		Diagnostic Inertia: On Hospital Day 3, the Hospitalists transitioned with same working diagnoses	Obtain your own complete medical history and reperform a focused and purposeful physical exam
	Short cuts in data gathering: reading only the conclusion of the radiology report	Interpretive Error/Framing Bias: Radiologist assessment of liver lesion before the development of fever and bacteremia	Differentiate hypotheses with further history, exam, and diagnostic tests
Association of poorly controlled diabetes as risk factor for <i>Klebsiella</i> primary liver abscess	Correctness assumption of data previously gathered	Context Error: in which abdominal pain was attributed to peptic ulcer disease (based on CT stranding) despite bacteremia	Take a “Time-Out” to reflect. What are we missing? What else could this be? Acknowledge uncertainties and anticipate follow up and patient education

EDUCATION COMMITTEE STATEMENT ON USMLE SCORE REPORTING

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In March 2019, the Invitational Conference on United States Medical Licensing Examination Score Reporting (InCUS) was held with leaders from major stakeholder groups, including the Association of American Medical Colleges (AAMC), American Medical Association (AMA), Educational Commission for Foreign Medical Graduates (ECFMG), Federation of State Medical Boards (FSMB), and the National Board of Medical Examiners (NBME). The goals of this conference was to connect stakeholders in a conversation about the use of United States Medical Licensing Examination (USMLE) Step 1 score reporting, and, even more broadly, to begin to discuss the challenges facing both students and faculty in the undergraduate medical education (UME) to graduate medical education (GME) transition. Invited participants in this meeting ranged from residency program directors to medical school deans to medical students.

This discussion led to the following recommendations:¹

- The overemphasis on USMLE Step 1 performance in residency applicant screening and selection needs to be addressed. A change in score reporting to a Pass/Fail system, tiered score reporting, or a composite score of Step 1 and Step 2 CK/CS may be warranted to address this issue.
- The USMLE Step 1 score is being employed to make decisions that may be beyond the scope of its ability. Therefore:
 - Accelerated research on the correlation of USMLE performance with measures of residency performance and clinical practice is needed.
 - Racial and demographic differences that exist in USMLE performance must be minimized in order for it to remain a valid and reliable test of medical knowledge.

- Meaningful change in the UME-GME transition is needed and to accomplish this goal a cross-organizational panel should be convened to create solutions to address the challenges of this transition.

The InCUS group recently solicited public comment on these recommendations. The Society of General Internal Medicine's Education Committee crafted an official response on behalf of the Society. This response, which may be found below, was approved by SGIM council and submitted to USMLE during the public comment period, which closed on July 26, 2019.

USMLE's final recommendations should begin to be released in the Fall of 2019 with a decision pertaining to USMLE Step 1 score reporting in the winter of 2019.

Society of General Internal Medicine's Official Statement on USMLE Score Reporting

The issue of USMLE scoring is complex and it is unlikely that one solution will satisfy all stakeholders. What is clear is that the USMLE Step 1 score is being used in a way that was never intended—as a method to screen and select candidates for residency. It is critically important that the question of moving the test to pass/fail be approached with caution and through a thoughtful, evidence-based process.

More than just a scoring change, the conversation around pass/fail scoring has brought to light the need for comprehensive change in the residency application process. While a more holistic approach to the residency application process is welcomed by all, this will not be accomplished overnight and will require improved collaboration and transparency between educators in undergraduate medical education (UME) and graduate medical education

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of the cognitive forces impacting clinical reasoning. A simple strategy is to use the tool IDEA: Identify assumptions, Don't assume correctness, Explore expectations, and Assess alternatives.⁶

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analyzing legislation and agency rule-making with an eye towards change. LEAHP has helped me develop the skills and confidence to expand my impact.”

“My LEAHP foundation has helped me develop my career as an educator and as an advocate. As faculty mentor for our residency program’s Health Policy and Advocacy Committee, I have started developing a health policy curriculum and encouraged trainees to join advocacy efforts at the state and national level, and I remain an active participant of the SGIM Health Policy Education Subcommittee.”

“Being a LEAHP Scholar gave me a strong foundational knowledge of health policy development and the understanding that it is the apex of creating change in healthcare. LEAHP pushed me to write Op-Eds, become more active in resolution writing with my local AMA chapter, and make undergraduate and graduate medical education curriculum changes at my local institution and state-wide, which I plan to pursue nationally.”

For those readers familiar with the Kirkpatrick Model,² widely applied to medical education, the early benefits of the LEAHP program in terms of attitudes, knowledge, and behavior change will resonate as level 1-3 outcomes in this framework. The 4th level, patient benefit, remains the most important and challenging. Will the policy analysis, advocacy efforts and educational curricula developed by LEAHP scholars ultimately contribute towards meaningful policy change that can benefit the patients that SGIM serves? This question remains unanswered and depends in large part on the future of the LEAHP program. Much like research or relationships with patients, advocacy/policy work is a long game, with major successes building off years of incremental work. Whether ensuring access to vulnerable populations via Medicare, Medicaid, and the Affordable Care Act; protecting immigrants documented and undocumented; addressing the opiate epidemic and preserving reproductive health rights; reforming the decades-old distortions in procedural vs. cognitive care payments in the Medicare Physician Fee Schedule; or supporting the on-

going federal funding of AHRQ and PCORI, furthering the core missions of SGIM requires an ever-expanding cadre of engaged, passionate, and knowledgeable policy leaders in internal medicine.

The LEAHP program has enabled us to become change agents within our own systems and within local and national government on behalf of our colleagues and our patients. More champions are now needed. The application period for 2020-2021 LEAHP scholars is now open and will close on November 15, 2019.

To apply or learn more about LEAHP and the policy efforts of SGIM, please visit <https://www.sgim.org/communities/advocacy/leadership-in-health-policy>.

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MEDICAL EDUCATION (continued from page 14)

(GME). Our current system does not include enough objective, reliable, and valid markers to help programs make well informed decisions about applicants. Better strategies to identify predictors of success in residency training and the need to build processes that will help UME leaders clearly communicate the knowledge, skills, and attitudes that an applicant possesses to their GME colleagues. This should be done in an evidence-based manner such that one bad practice is not substituted with an equally flawed or worse tool.

We support a gradual phasing out the USMLE Step 1 score in a step-wise fashion over a period of several years, in order to simultaneously develop evidence-based objective evaluation methodologies. Quartile or quintile reporting is our

recommended first step, as communicating an applicant's standard deviation from the mean can help predict success on medical board examinations, while still allowing program directors some capacity to rank applicants. Further, this step provides additional time allowing stakeholders in UME and GME to create well-supported methods to match students to their best fit residency training programs. For example, developing more rigorous clinical evaluation methodologies such as entrustable professional activities (EPAs) could help highlight students' successes and lessen inter-school reporting variability while providing more data-based and objective predictors of an applicant's success in residency training.

All of these changes require a strengthened partnership between

undergraduate and graduate medical educators to investigate and institute improvements to transition away from the current system of stratifying residency program applicants to an improved process. While we feel that the USMLE Step 1 exam should ultimately change to pass/fail reporting, everyone involved in this process needs time to create the processes to evaluate candidates in a more comprehensive manner.

References

1. USMLE. Summary Report and Preliminary Recommendations from the Invitational Conference on USMLE Scoring (InCUS), March 11-12, 2019. https://www.usmle.org/pdfs/incus/InCUS_summary_report.pdf. Accessed October 15, 2019. **SGIM**

PRESIDENT'S COLUMN (continued from page 12)

It is also true that there is a great deal of practice and research activity in social determinants, meaning more and better science is coming out every day. It seemed clear that national funders, like the National Institute of Health or PCORI, have an important role to play in not only funding science but also helping to develop investigators with a new set of methodological skills needed for this work. In addition, it seems essential that this science is done with, and not for, people and communities. This is exactly the kind of research where SGIM members excel, and I would love to see that we are at the forefront of partnering with health-care systems engaged in practice in-

novation so that this knowledge can become part of the peer-reviewed literature.

Addressing the health needs of the whole patient and of the communities in which they live is core to SGIM and the work of our members. It underlies our SGIM vision, "a just system of care in which all people can achieve optimal health". I know that many of our members are already engaged in transformational work to address the social determinants of health through practice, education, research, and policy in the ways recommended in the report. We hope that for you all, the report provides not only validation that this work matters but also new ideas

about how medicine can take action at the local or national level. I also hope that the report inspires leaders in the public and private sector who have the power to move medicine upstream.

References

1. Bibbins-Domingo K, chair. *Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health*. <http://nationalacademies.org/hmd/Reports/2019/integrating-social-care-into-the-delivery-of-health-care.aspx>. Wash DC: National Academies Press, 2019. Accessed October 15, 2019. **SGIM**