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Residents and Fellows Edition

Featured Employer Profile





February 20, 2020

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As you near completion of your training, I'm sure that finding the right opportunity is a top priority. The *New England Journal of Medicine* (NEJM) is the leading source of information about job openings, especially practice opportunities, in the country. Because we want to assist you in this important search, a complimentary reprint of the physician job openings section of the February 20, 2020, issue is enclosed.

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On behalf of the entire *New England Journal of Medicine* staff, please accept my wishes for a rewarding career.

Sincerely,

Eric J. Rubin, MD, PhD

Physician Employment Contracts: Strategies for Avoiding Pitfalls

By Bonnie Darves

As physicians increasingly opt for practice opportunities in employed-model arrangements, and hiring entities move toward standardizing employment contracts to simplify matters and ensure equitable treatment of existing and incoming physicians, it might appear that there's scant room for negotiating contract terms.

That's not a prudent attitude to take about such an important document, contract lawyers maintain. That employment agreement not only dictates the next year or two of a physician's career but also could potentially negatively affect his or her personal and professional life for years into the future. Benjamin J. Mayer, JD, MBA, a Denver lawyer whose firm specializes in physician contracts, advises physicians to take the position that any terms that aren't favorable can — and should — be made more reasonable. "The physician might not be able to get a higher starting salary or a larger signing bonus but definitely should negotiate anything that's explicitly unfair or clearly intentionally ambiguous," Mr. Mayer said.

Key examples he cites are contracts with onerous non-compete provisions that would prevent a departing physician from working within, say, a 60-mile radius of any of the employer's locations, or contracts that contain little detail about weekly work hours and schedules, or call requirements. Essentially, anything that is vague or an overreach should be modified and specified. "The physician needs to require reasonable boundaries on all of the contract's terms," Mr. Mayer said. For example, any non-compete radius should be drawn from a single primary location, not from all of a sprawling mega-health system's hospitals and clinics. Similarly, regarding schedules, the contract should at least specify a cap on total weekly hours or days worked and should dictate an equitable call schedule.

"Duties, hours, and responsibilities should be spelled out, and if the call coverage isn't specified, the contract should at least state that those duties will be 'equally divided among all physicians' in the group," Mr. Mayer said. He acknowledged that some young physicians might be willing to shoulder commensurately more call duty than their peers if they're trying to pay off medical school loans, for example, but such special arrangements are best addressed outside of the contract.

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Michael Schaff, cochair of health law for Wilentz, Goldman & Spitzer, P.A. in Woodbridge, New Jersey, suggests that young physicians in surgical and other call-intensive specialties should determine whether practice culture or bylaws issues might translate into an inordinate call burden that they're not willing to assume. For example, Mr. Schaff noted, some practices enable physicians who reach a certain age — 55 or 60 is common — to opt out of call altogether. If several senior doctors stop taking call, younger physicians' "equally divided duties" might be unmanageable. To be safe, the contract should specify a "not to exceed" number of call days per week or month, Mr. Schaff and other sources advised.

Emerging "super groups" affect contracts

On a global scale, practice acquisition and management trends — specifically, the growing influence of private equity on physician practice and facility management and the creation of huge organizations that operate scores of groups — are affecting physician employments. Rebecca Gwilt, a Richmond, Virginia, lawyer and partner in Nixon Law Group, said she is witnessing a "trickle-down effect" on contracts as private equity-operated super groups emerge.

"We're seeing a more sophisticated framework for physician contracts," Ms. Gwilt said, as well as a tendency toward both shorter employment terms and slimmer benefits. "Legally, these companies aren't permitted to influence the delivery of services, but in general, they're non-physician companies, which means that the MBAs are making contract decisions, not physicians," said Ms. Gwilt, who frequently speaks on physician contract issues. "So, as this [model] becomes more common, market salaries and benefits could change."

Although the trend toward super-group formation isn't inherently negative — such groups have more bargaining power regarding physicians' reimbursement rates than smaller ones do, generally — it does call for due diligence and research on the part of physicians who consider interviewing with such entities. "You first should find out who runs the company, because you will have less room to negotiate a contract than with a physician-owned practice," Ms. Gwilt said. "You want to know what it's like to work there, so I advise clients to ask for the name of the last physician hired — someone who's been there for a year — and then talk to that physician."

The movement toward "corporatization" of medicine, in tandem with the fluctuating health care economic, reimbursement, and policy environment, is prompting employers to reduce their financial risk wherever possible. One example is instituting shorter contract employment terms, which enables employers to more easily let go of poor-performing physicians. Another recent development is the setting of limits on how much individual physicians can earn, regardless of their productivity, according to Kyle Claussen, CEO of Resolve Physician Agency, a Missouri-based firm that counsels physicians on contract issues.

"It's becoming more prevalent to see clauses with caps on compensation, such as the 75th or 90th percentile in a major national survey such as the Medical Group Management Association survey," Mr. Claussen said. Although such caps aren't likely to affect most physicians coming out of residency because starting salaries are rarely set at those percentiles, the caps could penalize high-income specialties such as neurosurgery and orthopedic surgery as those physicians move into their second and third years of practice. "I've seen some high-income specialists walk away from those potential jobs," he said. He added — and other sources concurred — that sign-on bonuses are less common now than they were a few years ago, possibly for some of the same economic reasons.

Another contract area where shifts are occurring involves bonuses and productivity-based compensation, several sources mentioned. As employers, as well as government and commercial insurers, move toward providing monetary incentives to physicians for performance on measures ranging from patient satisfaction to hospital readmissions, it's important to know how such payments are handled on the employer side. This is particularly the case with any bonuses or incentive payments that may be due a physician, Mr. Schaff pointed out.

For example, if the contract states that incentives and bonuses are paid only through the employment period or only at the end of a calendar year, the physician might lose out on a substantial sum if he or she leaves the job on, say, Dec. 22, rather than Jan. 1 of the following year. Ideally, the contract should call for payment of "all bonuses earned through the time of termination."

Ditto for accounts receivable monies that physicians might be due. It's very common for such monies to continue flowing to the practice for several months after a physician departs, so ideally, Mr. Schaff suggested, the contract should call for reporting on such funds for a specific period

after termination and ultimately paying out what's due at, say, 60, 90, or even 180 days post-termination of employment. "This is all over the map in contracts I've seen," Mr. Schaff said. "I've even seen contracts that state that the physician only receives payments through the last day of employment. This is something that should be negotiated."

At the other end of the spectrum, physicians whose contracts set minimum or expected productivity or quality performance targets in order to continue the base salary beyond year one should understand not only what those requirements are but also — and more importantly — whether they're achievable and reasonable. That means talking to other physicians at the prospective practice to see how they've fared in year two in productivity. It's also helpful to find out how much personal effort is required to track the performance metrics that underlie performance payments, several sources advised. Mr. Mayer said that when a base salary arrangement converts to a totally productivity-based one at the end of the first year, he often negotiates for something less dramatic, such as continuation of the base salary for an extended period or and perhaps a part-base/part-productivity structure.

"The point is that your contract governs how your money works, and compensation structures are becoming increasingly complicated," Ms. Gwilt said. "That's why it's really important that physicians understand those structures and obtain legal review." It's not uncommon for compensation methodologies to incorporate a half-dozen components beyond base salary, such as incentive bonuses or "clawbacks" (monies returned to the employer for underperformance or other reasons) based on quality measures, cost metrics, patient-specific clinical measure reporting, compliance, and shared-savings, to name a handful.

On a final note, all sources stressed the importance of physicians reading every word of the contract and obtaining expert review. The point is to make sure that physicians understand what the contract entails and what its provisions would look like in their daily lives, by requesting specific examples of not only what's expected of them but also what might happen should they leave the position prematurely. "One thing that physicians need to think about but are reluctant to ask is this: What happens if they want to get out or if the employer wants to terminate the contract?" Ms. Gwilt said. "If there's a penalty clause, that should be highly negotiated."

Contract pitfalls to watch for

Contract language that's vague and highly employer favorable. Such language might show up in any area of the contract, but it's especially problematic when it comes to physician schedules and duties, according to Ms. Gwilt. "You want to beware of anything that states, 'X will be determined by the practice at its discretion,'" she said. That leaves the physician open to whatever the employer decides at any time during the contract period. At the least, physicians should negotiate to add that the terms be "fair and reasonable, and in accordance with [requirements] for all like colleagues."

Mr. Mayer provides an example of where "at the practice's discretion" could have a serious lifestyle effect: unspecified practice locations. As organizations merge and/or add satellite facilities, a vague location clause might mean that physicians could be required to commute to or travel among four different clinics or hospitals. Mr. Mayer suggests that physicians ask prospective employers to specify locations and limit their number contractually, or at least give the physician the opportunity to decide if she or he is willing to expand the number.

Highly restrictive non-compete clauses. Syracuse, New York, attorney Andrew Knoll, JD, MD, cautions physicians to beware of and negotiate onerous non-compete terms when employers aim to keep physicians from working for a slew of specific competitors. "I've seen clauses that state, 'Within two years of leaving the practice, the physician cannot work for health system Y or hospitals A, B, or C.' That's overly broad. Others might restrict the employee from going to a particular large health system, but not to smaller hospitals or systems in the same urban area," Mr. Knoll said. "These clauses should always be reviewed."

Unreasonable benefit start dates. One pitfall with benefits is not ensuring that they commence at a reasonable time, Mr. Schaff observed. For example, if a contract stipulates that that health insurance benefits start on the first day of the month following hiring or 90 days hence, he said, "The physician could be on the hook for paying the premiums for COBRA [continued coverage from the previous employer]. At the least, if the benefits start date can't be modified, the incoming physician might try to negotiate that the employer pay the COBRA premiums until the coverage starts."

Did you find this article helpful? What other topics would you like to see covered? Please send us an email to let us know what you thought at resourcecenter@nejm.org.

Onerous — or unspecific — indemnification or liquid damages clauses, especially regarding malpractice claims. The first order of business here is to understand any limitations that employer-paid malpractice coverage might have, and then ensure that the employed or contracted physician isn't on the hook fully for additional damages that the policy doesn't cover, Mr. Mayer advised. For example, if the malpractice coverage tops out at \$1 million and the judgment comes in at \$1.25 million, some contracts might shift the entire shortfall to the physician, explicitly or not so explicitly. "Such a provision might say that 'the practice and the doctor agree to indemnify and hold each other harmless for any liability caused by the other,'" Mr. Mayer said. "It sounds and seems fair, but in practice, the malpractice claim will usually follow the physician, not the practice. This is something that requires careful review and possibly negotiation."

Eyeing Physician Career Boost Via Formal Business Education

Getting a business degree can be highly rewarding, but planning and foresight are essential

By Bonnie Darves

Physicians pursue formal business education for a whole host of reasons, but there are some common threads. For many, it's a desire to effect change within their organizations or even health care delivery as a whole. For others, a master of business administration (MBA) or master of medical management degree (MMM), or the Certified Physician Executive (CPE) credential, is viewed as a way to better position them as credible participants in big-picture discussions about organizational direction or in decisions that affect their professional lives or their specialty's future.

Increasingly, especially in large organizations, the business degree may be a requirement for seeking a senior leadership position. Some physicians have a specific reason for getting an MBA or MMM, such as launching a new clinical service. A final subset of physicians obtains formal business education as a first step toward exiting clinical medicine and moving wholesale into a nonclinical leadership role.

For internist Pamela Sullivan, MD, MBA, the driver was twofold. She needed a better understanding of the business world to help her perform more effectively in the leadership realm in which she was already functioning as a medical director. She also wanted to make a better-informed decision about how to focus the rest of her career.

"I realized that I needed to know more, and that I needed to be able to speak the [business] language whether I was in a clinical meeting or a business meeting," said Dr. Sullivan, who is chief clinical officer of implementation for Landmark Health, which partners with health plans and uses a "house calls" model to care for patients with multiple chronic conditions. "The MBA program gave me the confidence I needed to do that."

Dr. Sullivan opted for the one-year physician executive MBA program at the University of Tennessee's Haslam School of Business. In part, she chose it because it was shorter than some MBA programs, but also because she wanted a practical curriculum and the face-to-face experience

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of the four weeks of onsite residence. “I learn by doing, and this program was not about taking exams — we got real-life practical assignments. It was so energizing,” Dr. Sullivan said.

Andrew Furman, MD, MMM, took a more stepwise, protracted approach to getting his master’s in medical management. The emergency medicine physician started by taking courses through the American College of Healthcare Executives and the American Association for Physician Leadership (AAPL) over a few years. He then carried those credits into the MMM program at University of Southern California (USC) in Los Angeles, which he completed in 2017. Today, after stints at Geisinger Health System, and Salem Health in Oregon, he is medical director for Accolade, Inc., an innovative private care-delivery and benefits company serving self-insured employers.

The slower approach enabled Dr. Furman to initially select courses on topics that related to issues he was encountering in his work, while allowing him to accrue credits toward an eventual master’s degree. “I started piecemeal when I was three years out of residency and was doing committee work. The AAPL courses were fantastic because they set me on a path to a one-year USC program,” Dr. Furman said.

From the outset, Dr. Furman was clear about his motivation for learning about business: “I wanted to be part of the change in health care, and any change that occurs affects physicians,” he said. “If you just want the three letters after your name, you might not get much out of it. If you want to shake up the mess we’re in in health care, you will.” For Anil Singh, MD, MPH, MMM, executive medical director of clinical transformation at Highmark Health and system division director of Critical Care at Allegheny Health Network in Pittsburgh, Pennsylvania, the decision to obtain a business degree arose in part out of frustration. “I was being asked increasingly to do things that did not involve patient care, and to help fix issues,” said Dr. Singh, who obtained his MMM from Carnegie Mellon University. Business people sometimes asked him to write a pro forma or show ROI [return on investment] when he proposed a solution.

“I had no idea what they were talking about and decided I needed to understand the jargon. Being in the program opened up a different side of my brain that I’d never used before,” Dr. Singh said. “Now, when I speak to businesspeople in their own language, I’ve got immediate ‘street cred.’”

Benefits of business education: professional and personal

Like Dr. Singh, other physicians interviewed for this article were unanimous on one key benefit of formal business education: becoming conversant in the language spoken in board rooms and management meetings.

“I knew that if I was going to be communicating with CEOs and CFOs, and marketing directors, I needed to understand their language — and I needed the credentials and knowledge to participate effectively. The MBA gave me that confidence,” said anesthesiologist Talal Ghazal, MD, MBA, co-director of the Holy Cross Hospital Pain Center in Wheaton, Maryland. “I also wanted to learn about something I wasn’t trained in. I found that business is no big mystery — it’s a matter of understanding the fundamentals and concepts.”

Physicians who pursued MMM and MBA degrees that included an onsite component also cited interactions and continued networking with their cohort members as a major benefit.

“Working on an MBA, MMM, or CPE helps you develop a network of colleagues with similar goals or interests, who become an ongoing resource for advice or counsel,” according to John Jurica, MD, MPH, CPE, medical director of an Illinois urgent care network who blogs and delivers podcasts on physician leadership.

For Dr. Furman, the networking was especially gratifying. “The cohort experience was amazing. You learn so much from being in the room with people with varied backgrounds who often are experiencing similar issues,” he said. The diverse specialty and background profiles of a typical MBA cohort enrich the learning experience, notes Kate Atchley, PhD, executive director of the University of Tennessee’s Physician Executive MBA program. “In a typical year, we’ll draw physicians who are entrepreneurial-minded, some who are in mid-career or are already in administrative positions who want business acumen, and younger physicians who know that medicine is changing and want to be part of that change,” she said. “The benefit of the physician-only environment is that the students come in with the same educational background and the same experience of clinical work — they can relate to each other.”

Dr. Singh’s cohort, for example, included hospitalists, internists, cardiologists, a pathologist, and a palliative medicine physician. “Learning from the other physicians was a phenomenal experience,” he said.

Rex Kovacevich, MBA, a professor of clinical marketing in USC's MMM program, sees those valuable interactions firsthand. He often witnesses physicians sharing their stories and experiences, and in doing so, helping each other deal with situations in their own organizations or professional lives. "That's one of the key benefits of the cohort model — the physicians become comfortable sharing with each other," said Mr. Kovacevich. Monique Butler, MD, MBA, chief medical officer for Swedish Medical Center, in Englewood, Colorado, cites those networking benefits and the resulting relationships she built as an important outcome of her participation in the University of Tennessee's Physician Executive MBA program. "The cohort experience gives you a huge support network. We're able to just pick up the phone and call each other when we're working through a challenge," she said. "It's been incredibly helpful."

Weighing the education options

The chief decision physicians face when they decide to pursue business education is choosing which route to take. The formal physician executive MBA, MMM, and CPE programs teach similar content, but their formats differ. The traditional MBA program, offered online or in a hybrid online/on-campus format, or as an immersive on-campus experience, ranges from one to two years and focuses on business theory, concepts, and principles. There are more than two dozen traditional MBA programs that have a health care business or leadership focus. Several universities now offer physician-only executive MBA degrees structured to accommodate the schedule constraints of practicing physicians and to deliver targeted content. Programs developed as part-time offerings often impose a maximum time for completion.

The MMM, a more recent entrant in the business-degree realm, is designed specifically for physicians and typically targets those who are at least three years out of residency. Physicians who pursue an MMM often end up serving as medical directors, department chairs, chief medical officers, or president/vice president of medical affairs. The programs run 12 to 18 months, and prerequisites might be required. These programs incorporate online learning and an onsite residential component several times annually. Common courses include organizational management, health economics, health policy, health finance, health law, and operations management.

Maeleine Mira, director of the MMM program at USC's Marshall School of Business, said that a key feature of the MMM curriculum is that it's designed to teach students how the business cases apply in health care. "That's one of the benefits of the MMM compared to traditional MBA programs," she said. "Every student graduates with an implementable capstone, so that they're ready to go back and institute changes." USC also offers a pre-MMM fellowship option for final-year residents.

When considering any MBA or MMM program, prospective participants should carefully evaluate the content focus to choose a program that suits their individual needs or career objectives, several sources pointed out. Physicians should also keep in mind that some programs require that participants have three to five years of clinical experience post-residency.

The CPE that AAPL offers focuses heavily on both business content and leadership training and is pursued on a course-by-course basis in a 150-credit curriculum consisting of online learning and live events. The focus is on hands-on learning. The CPE offers flexibility for participants who might need to complete the curriculum at an uneven rate or over a longer period, and it requires a final capstone project and audiovisual presentation. A sophisticated technology platform facilitates interaction among learners, and AAPL also provides professional development resources such as career assessment and executive coaching.

Typically, physicians earn their CPE designation in two to 2½ years, according to Peter Angood, MD, AAPL's president and chief executive officer. AAPL also partners with five universities to enable students to complete prerequisites toward master's degrees and easily transition into those programs.

Other degrees that include some business content include the master in healthcare quality and safety management (MS-HQSM) and master of science in the science of healthcare delivery (MS-SHCD), as well as clinical informatics degrees. The master of health administration also includes business principles but focuses on applied health care experience.

When choosing a degree program, especially an MBA, physicians should be fairly clear about what they want to achieve, Dr. Jurica advises, in part because of the financial investment. That might range from under \$10,000 for an online-only program to \$100,000 for a big-name university MBA. The CPE path is generally less expensive than the traditional MBA

or MMM program, he added. “It might be worth waiting to start a program, if there’s a way to get your employer to help with the costs,” Dr. Jurica said. He also advised physicians who aren’t ready to commit to a program to consider taking business courses through the AAPL, specialty organizations, online programs, or local education institutions.

“It’s important to decide whether you need the name recognition — which might be the case for those who will compete for a senior management position at a large organization — or just the degree and the core business knowledge,” Dr. Jurica said. In the latter case, an economical online program might suffice.

What to expect

The prospect of continuing clinical practice while obtaining a business degree can be daunting, but it’s doable for physicians who organize their time efficiently and strategically, sources agreed. The MBA and MMM programs typically carry a workload of 12 to 25 hours weekly, in addition to the onsite periods.

Physicians who want to get a business degree should plan well in advance, all sources said, and should ensure they will have support from their families, colleagues, and organizations before they start. Ideally, they should also try to either reduce or reconfigure their clinical hours to accommodate program demands. “The most important aspects of preparing for a graduate business degree are figuring out how you’ll arrange your time when you add the program to your other responsibilities and making sure that those close to you — your spouse, your coworkers, your children — are onboard,” said Mr. Kovacevich.

That’s one reason that Dr. Ghazal, who obtained his health care MBA from George Washington University in Washington, D.C., encourages physicians who are eyeing a specific role to consider getting a degree earlier in their careers. “By the time you get to mid-career, and have a demanding practice and a family, it can be a challenge to fit it in because of the time requirements — you basically have a deadline every week.”

Deborah Vinton, MD, medical director of the emergency department at the University of Virginia in Charlottesville, found herself on a crash course path when she began the University of Tennessee Physician Executive MBA, five years after finishing residency. She started the program just six weeks

after delivering her third child. Despite the logistical challenges, the timing was important: she had an opportunity to participate in planning the UVA’s new emergency department and needed business credentials to be effective.

“I wanted to be a physician leader at this academic center, and I knew I needed this education,” Dr. Vinton said. The school and her cohort were “amazingly supportive,” she said, and she was able to bring her infant daughter with her for the onsite residency portions. “I was surprised by how accommodating everyone was — I didn’t expect that,” she said.

For Jamie Eng, MD, MMM, who completed her MMM at USC as a continuation of the administrative emergency fellowship that program offers, the degree better equipped her for the administrative work she was already doing at USC-Los Angeles County Medical Center. “It was fortuitous because the fellowship actually required me do the MMM. I looked at other administration fellowships, but this was such a good fit that I decided I might as well get the degree,” said Dr. Eng, who is associate medical director of emergency medicine at Providence Tarzana Medical Center in Tarzana, California, and director of the USC Administrative Emergency Medicine Fellowship program.

“The cohort was fantastic,” Dr. Eng said. “I feel like my administrative experience was sped up by a decade learning from the experiences of others.”

Tips for choosing a program and planning the journey

Physicians interviewed for this article offered the following additional guidance for their colleagues planning to pursue formal business education:

“When you’re evaluating programs, look at how the curriculum and the schedule can intersect with your job. If you’re not able to merge your work with the requirements, you might have to consider other options.” — Deborah Vinton, MD, MBA

“I think it’s important to get awareness of the various learning opportunities, so that you have a better sense of what you want for your professional growth.”
— Peter Angood, MD, AAPL president and CEO

“When you’re looking at programs, be clear about your career and where you want to be in five years — and how a particular program or fellowship is going to get you there.” — Jamie Eng, MD, MMM

CLINICAL PRACTICE

Caren G. Solomon, M.D., M.P.H., *Editor*

Warm Autoimmune Hemolytic Anemia

Robert A. Brodsky, M.D.

This Journal feature begins with a case vignette highlighting a common clinical problem. Evidence supporting various strategies is then presented, followed by a review of formal guidelines, when they exist. The article ends with the author's clinical recommendations.

A 61-year-old woman presents to the emergency department reporting fatigue, increasing dyspnea, and dark urine. The respiratory rate is 30 breaths per minute, the pulse 116 beats per minute, and the oxygen saturation 90% while she is breathing ambient air. She is pale, without splenomegaly or adenopathy. Her hemoglobin level is 5.4 g per deciliter, hematocrit 16.1%, and mean corpuscular volume 103 fL; the white-cell and platelet counts are normal. The percentage of reticulocytes is 15.7%, and the total bilirubin level is 9.7 mg per deciliter (166 μ mol per liter). A peripheral-blood smear reveals numerous microspherocytes. A direct antiglobulin test is positive for IgG and weakly positive for C3d. Laboratory tests show a panagglutinin. She takes no regular medication. How would you further evaluate and treat this patient?

THE CLINICAL PROBLEM

WARM AUTOIMMUNE HEMOLYTIC ANEMIA (WAHA) LEADS TO ACCELERATED red-cell destruction due to the presence of warm agglutinins (almost always IgG antibodies) that bind to antigens on erythrocytes at a temperature of 37°C. The annual incidence of WAHA is 1 to 3 cases per 100,000 persons.¹ The median age of onset is 52 years, but WAHA may occur at any age, and there is a slight female predominance in most series. Up to 30% of patients have a durable remission after initial therapy, but the rest have a chronic, relapsing course.¹⁻³

Most accelerated red-cell clearance is through the spleen and liver (extracellular hemolysis).⁴ IgG-coated red cells are recognized by splenic macrophages, which carry Fc γ receptors for the IgG heavy chain. This leads to either phagocytosis of the red cell or, more commonly, removal of a portion of the red-cell membrane, resulting in microspherocytes that are visualized on a peripheral-blood smear (Fig. 1A). Microspherocytes are less pliable than normal erythrocytes and become trapped in the splenic sinusoids during their next passage through the spleen. Extracellular hemolysis in the spleen may also be due to antibody-dependent cell-mediated cytotoxicity from T cells that also possess Fc receptors. IgG subtypes can also activate complement, leading to deposition of C3 fragments on the red cell that are then removed by liver macrophages that carry receptors for C3 fragments. In severe cases, complement activation can lead to formation of the membrane attack complex (C5b-9) on the surface of red cells and result in intravascular hemolysis, which manifests as hemoglobinuria and markedly elevated lactate dehydrogenase levels.⁵ Virtually

From the Division of Hematology, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore. Address reprint requests to Dr. Brodsky at the Ross Research Bldg., Rm. 1025, 720 Rutland Ave., Baltimore, MD 21205-2196, or at brodsro@jhmi.edu.

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"You must be able to make the commitment before you start a program. You need a game plan, the financial resources, and the buy-in from family and colleagues. I ended up devoting two full days a week to my studies." — Pamela Sullivan, MD, MBA

"Truly understand the time commitment. Programs might cite a certain number of hours per week but assume that that's the minimum. It might take more time to meet your requirements." — Talal Ghazal, MD, MBA

"Do the degree at the right time in your career. It's important to be a good doctor first and to have that credibility. I think five years in practice is the minimum, and that seven to 10 might be the sweet spot." — Anil Singh, MD, MPH, MMM

KEY CLINICAL POINTS

WARM AUTOIMMUNE HEMOLYTIC ANEMIA

- Warm autoimmune hemolytic anemia (WAHA) is a chronic, relapsing disease characterized by anemia, reticulocytosis, other laboratory evidence of hemolysis, and, in 95% of cases, a positive direct antiglobulin test (Coombs' test).
- Autoantibodies in patients with WAHA (panagglutinins) typically lack specificity, in contrast to alloantibodies that are typically specific for red-cell antigens.
- Several retrospective studies have shown that the absolute risk of venous thromboembolic events (pulmonary emboli and deep venous thrombosis) is 15 to 30% among adult patients with WAHA.
- Prompt transfusion of ABO- and RhD-matched blood is warranted for patients with WAHA and severe anemia (hemoglobin level <6 g per deciliter).
- First-line therapy involves glucocorticoids and rituximab. In two randomized, controlled trials, glucocorticoid therapy plus rituximab was superior to glucocorticoid monotherapy as first-line treatment for WAHA.

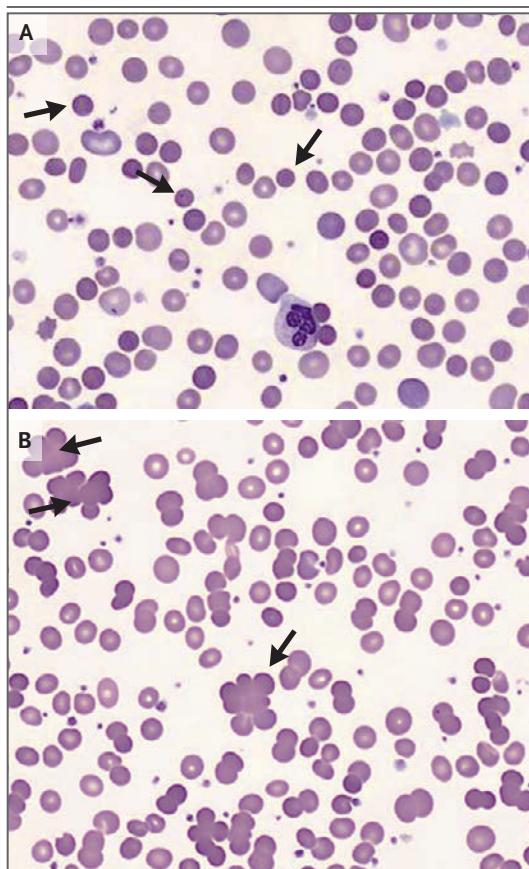


Figure 1. Peripheral-Blood Specimens.

Panel A shows numerous microspherocytes (arrows) that are typically seen in warm autoimmune hemolytic anemia. Panel B shows red-cell agglutination (arrows) in a sample obtained from a patient with cold agglutinin disease.

all warm autoantibodies are polyclonal and react with all reagent red cells from the blood bank (panagglutinins), even when WAHA is associated with clonal B-cell lymphoproliferative diseases such as chronic lymphocytic leukemia (CLL).^{6,7}

Approximately 50% of cases of WAHA are primary and idiopathic; the rest are secondary to other disorders (Table S1 in the Supplementary Appendix, available with the full text of this article at NEJM.org) or medications.⁸ Immunodeficiency disorders that are associated with an increased risk of WAHA include common variable immunodeficiency⁹ and other primary immunodeficiency states, such as the autoimmune lymphoproliferative syndrome.¹⁰ Patients with this syndrome harbor germline mutations in genes such as *FAS*, *FASL*, or *CASP10*. These mutations lead to diminished Fas-mediated lymphocyte apoptosis and failure to delete autoreactive lymphocytes, and thus a predisposition to WAHA and other autoimmune diseases. Acquired lymphoproliferative diseases associated with WAHA include CLL, non-Hodgkin's lymphoma, and Hodgkin's lymphoma. Purine analogues such as fludarabine increase the risk and exacerbate the severity of WAHA among patients with CLL, as does a history of allogeneic bone marrow transplantation or solid-organ transplantation. Other risk factors for WAHA include rheumatologic conditions (e.g., systemic lupus erythematosus, scleroderma, and rheumatoid arthritis) and infections, including viral infections (especially in children, and in particular, human immunodeficiency virus [HIV] infection) and babesiosis in

patients without splenic function. In a single-institution study involving 86 patients with a diagnosis of babesiosis,¹¹ WAHA developed in 6 patients, all of whom had undergone splenectomy, within 2 to 4 weeks after infection, whereas only 12 of the 80 patients in whom WAHA did not develop had undergone splenectomy.

Multiple medications also are associated with the development of WAHA.¹² The most common drugs associated with WAHA are penicillins and cephalosporins. A recent search of the Food and Drug Administration database revealed 68 cases of WAHA associated with checkpoint inhibitors, which are known to be associated with immune-related complications.¹³ The reported incidence of WAHA appeared to be higher among patients who received programmed death 1 (PD-1)-targeted and programmed death ligand 1 (PD-L1)-targeted therapy (0.15% to 0.25%) than among those who received cytotoxic T-lymphocyte antigen 4 (CTLA-4) inhibitors (approximately 0.06%). Most patients with WAHA associated with checkpoint inhibitors have a response to treatment with glucocorticoids, but at least 2 patients who received this treatment have died.

Several retrospective studies have shown that the absolute risk of venous thromboembolic events (pulmonary emboli and deep venous thrombosis) is 15 to 30% among adult patients with WAHA.^{3,14} The incidence is highest within the first several weeks after diagnosis, and these events are more common in patients with more severe hemolysis. Hemolysis itself appears to account for the high incidence of thromboembolic complications¹⁵; the increased risk persists after adjustment for a score predicting the risk of venous thromboembolism according to other factors (the Padua prediction score),¹⁶ the presence of antiphospholipid antibodies, and whether the WAHA is primary or secondary. Patients with treatment that includes splenectomy are at increased risk for infection, even if they have undergone prophylactic vaccination against encapsulated organisms.

WAHA is often considered benign; however, mortality from vascular events (pulmonary emboli, myocardial infarction, and stroke) or from infection or sepsis may approach 5%.³ Low absolute reticulocyte counts¹⁷ (<60,000 per cubic millimeter) and the presence of warm IgM autoantibodies¹⁸ have been reported to be predictive of an increased risk of death.

STRATEGIES AND EVIDENCE

SIGNS AND SYMPTOMS

Common symptoms of WAHA (fatigue, dyspnea, and palpitations) are proportional to the degree of anemia. Brisk intravascular hemolysis, which can be associated with chest pain, lethargy, and confusion, is a medical emergency. Physical examination reveals pallor and jaundice proportional to the degree of anemia and intravascular hemolysis. Cardiopulmonary signs such as tachycardia, peripheral edema, and elevated jugular venous pressure may occur. Splenomegaly may be present, especially in patients with an underlying lymphoproliferative disorder. Common laboratory features include a low hemoglobin level, reticulocytosis, elevated lactate dehydrogenase levels, low haptoglobin levels, elevated indirect bilirubin levels, and a positive direct antiglobulin test.

Among 109 consecutive patients with hemolytic anemia included in a retrospective study (of whom approximately 80% had WAHA),¹⁹ the median hematocrit was 24% and the median corrected percentage of reticulocytes was 5.0% (range, 0.1 to 45.0). In a smaller registry study in France,²⁰ more than 90% of the patients had a low haptoglobin level and more than 90% had elevated lactate dehydrogenase levels. Bilirubin levels were elevated in more than 80% of the patients; one third had jaundice, more than 5% presented with chest pain, and more than 50% required blood transfusion. More than 20% of patients with WAHA have a concurrent monoclonal gammopathy, which is more than five times the expected rate for their age.²¹

DIAGNOSIS AND EVALUATION

WAHA should be suspected in a patient who presents with anemia and laboratory evidence of hemolysis (i.e., an elevated lactate dehydrogenase level, an elevated indirect bilirubin level, and a low haptoglobin level). The diagnostic workup should include a complete blood count, a reticulocyte count, the markers of hemolysis listed above, a peripheral-blood smear, and a direct antiglobulin test (Fig. 2).

It is important to distinguish between WAHA and cold agglutinin disease, which is typically caused by IgM autoantibodies that react with polysaccharide antigens on red cells at tempera-

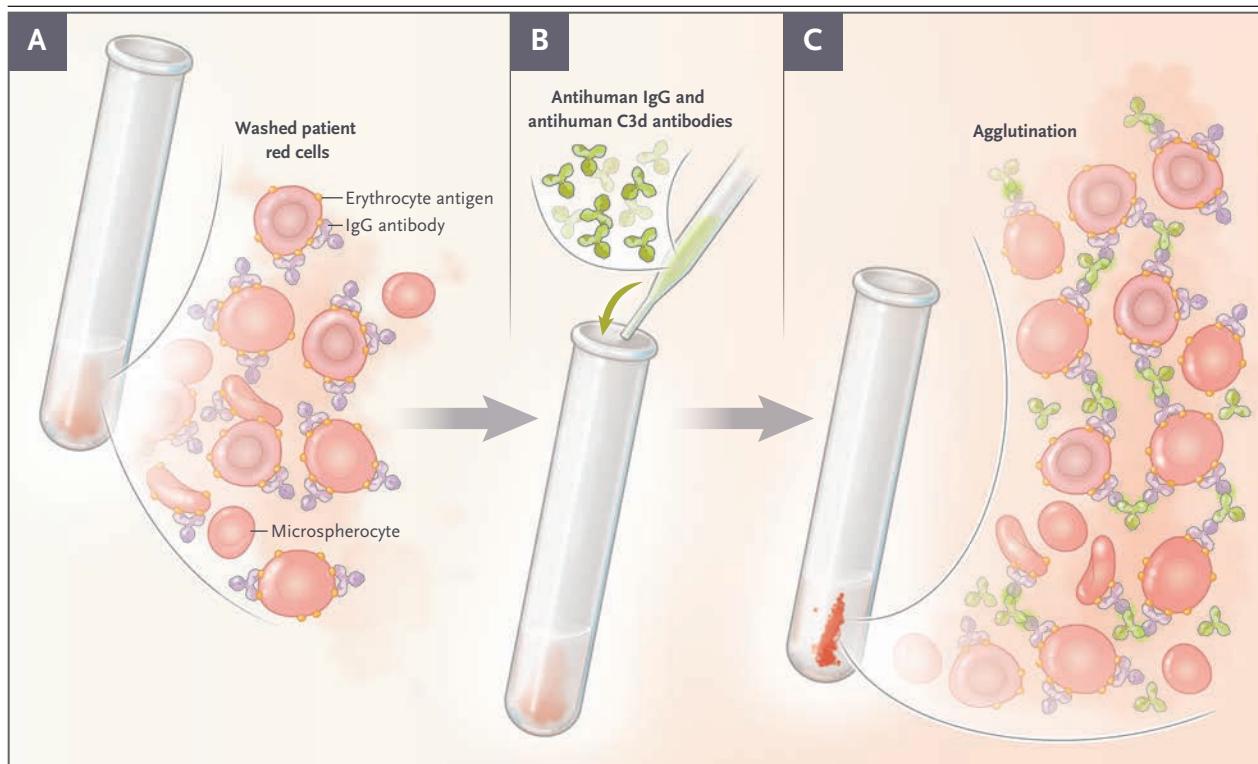


Figure 2. Direct Antiglobulin Test (Direct Coombs' Test).

The direct antiglobulin test is used to determine whether a patient's red cells are coated with IgG, complement, or both. Historically, Coombs' serum was made by immunizing rabbits with human immunoglobulin. The rabbits made antibodies against human immunoglobulin and complement that were subsequently purified to make Coombs' reagent; thus, the antihuman globulin contained antibodies against IgG and complement. Newer reagents are made by injecting purified proteins. The test is performed by taking washed patient red cells (Panel A) and incubating them (Panel B) with antihuman IgG and antihuman C3d antibodies. In warm autoimmune hemolytic anemia, antihuman antibodies, anti-C3d antibodies, or both form links (agglutination) between red cells by binding the human antibodies on the patient's red cells (Panel C). Agglutination is graded visually as negative to 4+, with values of 1 or higher indicating a positive test result.

tures below the core body temperature and result in complement-mediated hemolysis.²² In cold agglutinin disease, the direct antiglobulin test is typically negative for IgG but positive for C3 fragments. Cold agglutinin disease is usually associated with antibody specificity to I or i red-cell antigens, a high titer of cold agglutinins (titer of >1:128), and a thermal amplitude (the temperature at which red cells agglutinate) higher than room temperature. A low titer of cold agglutinins or cold agglutinins with a thermal amplitude of 25°C or lower are not likely to be clinically significant; thus, communication with the blood bank is important to help distinguish between warm and cold autoimmune hemolytic anemia. Rarely, patients can present with mixed warm and cold autoimmune hemolytic anemia that is characterized by the presence of both a warm autoantibody and a cold-active IgM antibody.²³

A diagnosis of primary WAHA is defined by hemolytic anemia and a positive direct antiglobulin test in a patient who is not receiving a drug that can cause WAHA and does not have an underlying lymphoproliferative, infectious, autoimmune, or neoplastic disease (Table S1 in the Supplementary Appendix). WAHA in a patient with a negative direct antiglobulin test is rare (<5% of cases), but it should be suspected in patients with acquired hemolytic anemia and findings on a peripheral-blood smear that are consistent with WAHA.¹⁷ Paroxysmal nocturnal hemoglobinuria should be considered before making a diagnosis of direct antiglobulin test-negative WAHA.²⁴ Direct antiglobulin test-negative WAHA may be due to pathogenic IgG autoantibodies below the sensitivity level of the direct antiglobulin test (approximately 500 IgG molecules per red cell), red cell-bound IgA or

monomeric IgM, or low-affinity autoantibodies. Specialized reference laboratories offer enhanced direct antiglobulin test assays to detect most cases of direct antiglobulin test-negative WAHA.^{25,26}

Peripheral-blood flow cytometry may identify low-grade lymphoproliferative disorders and should be ordered for all adults with WAHA. Other tests warrant consideration in selected patients. These may include the D-dimer test, lower-extremity venous Doppler studies, and computed tomography (CT) of the chest if thromboembolic disease is suspected. Autoimmune panels should be performed in patients with signs and symptoms of rheumatologic disease. Bone marrow aspiration and biopsy and CT of the chest, abdomen, and pelvis may be indicated to rule out lymphoproliferative disorders, especially if the patient has lymphadenopathy, massive splenomegaly, weight loss, or unexplained fevers.

IMMEDIATE MANAGEMENT

WAHA with severe anemia (hemoglobin level <6 g per deciliter), hypoxia, confusion, or hemodynamic instability is a medical emergency, and urgent blood transfusion is indicated to reduce the likelihood of death from pulmonary edema, myocardial infarction, or arrhythmia. In virtually all cases, the cross-match will be "incompatible," given that the autoantibodies recognize blood-group antigens and will react with virtually all donor red cells; in such cases, ABO- and RhD-matched blood should be administered.

The risk of a transfusion reaction with ABO- and RhD-matched blood is nearly zero among patients who have not been sensitized to foreign red-cell antigens, and it remains low (<10%), even in patients with a history of pregnancy or previous blood transfusion predisposing to sensitization. The benefits of red-cell transfusion outweigh the risks, even in patients with a predisposition to sensitization who have severe anemia due to WAHA.²⁷ However, in previously sensitized patients, blood should be infused slowly (over 2 to 3 hours), and patients should be monitored for fever, chills, and dyspnea. Extended phenotype matching for additional Rh subgroups (C, c, E, e, Kell, Kidd, S, and s) should be performed in patients with nonurgent cases of WAHA among whom there is a high risk of alloimmunization.

DEFINITIVE THERAPY

Since randomized trials are lacking, recommendations for drug treatment for WAHA are primar-

ily based on case series and expert opinion. Treatment of WAHA that is attributable to other conditions or medications is generally the same as treatment for primary WAHA, but it may also include discontinuation of the use of offending drugs or treatment of underlying diseases such as poorly controlled HIV infection.

First-Line Treatment

Patients with a new diagnosis of symptomatic WAHA are treated with glucocorticoids (1–2 mg per kilogram of body weight per day of prednisone administered orally or an equivalent dose of methylprednisolone administered intravenously).^{28,29} It is recommended that this dose be continued until a hemoglobin level above 10 g per deciliter is achieved, a goal that is reached in up to 80% of patients within 2 to 3 weeks. A second agent is typically added if prednisone is not effective within 2 to 3 weeks after initiation. If effective, prednisone should be tapered over 4 to 6 months. The percentage of patients who remain in remission after discontinuing prednisone is unclear, but retrospective case studies suggest rates of 20 to 30%.^{3,20} Most experts aim for a hemoglobin level of 10 mg per deciliter or higher with a dose of prednisone of less than 10 mg per day by 3 months after treatment; otherwise, a second agent is administered to avoid long-term complications of glucocorticoid use. Data from randomized trials to guide tapering strategies are lacking, but rapid tapers over 3 to 4 weeks are often associated with relapse.

Another option for first-line therapy in patients with WAHA is the use of rituximab with glucocorticoids; two randomized, controlled trials showed that combined therapy was superior to glucocorticoid monotherapy. One open-label, phase 3 trial in which 64 patients were randomly assigned to prednisolone with or without intravenous rituximab (at a dose of 375 mg per square meter of body-surface area weekly for 4 weeks) showed higher rates of relapse-free survival with combined therapy than with monotherapy at 36 months of follow-up (70% vs. 45%).³⁰ There was no between-group difference in the rate of adverse effects. In another randomized, double-blind trial involving 32 patients with WAHA who had received prednisone for less than 6 weeks, patients assigned to intravenous rituximab (at a dose of 1000 mg, on day 1 and day 15) had higher rates of remission than those assigned to placebo at 1 year (75% vs. 31%) and at 2 years (62% vs. 19%).³¹

Table 1. Common Treatment Regimens for Warm Autoimmune Hemolytic Anemia.

Treatment Option	Route	Dose	Serious Adverse Effects	Comments
First-line treatment				
Glucocorticoids (prednisone and methylprednisolone)	Oral or intravenous	Oral prednisone: 1–2 mg/kg of body weight/day; intravenous methylprednisolone: 500–1000 mg/day; begin slow taper (to be completed over 4–6 mo) if hemoglobin level >10 g per deciliter after 1–3 wk	Diabetes, osteoporosis, infections	
Second-line treatment*				
Rituximab	Intravenous	375 mg/m ² of body-surface area weekly in 4 doses	Reactivation of hepatitis B virus infection; progressive multifocal leukoencephalopathy	All patients should be screened for hepatitis B surface antigen before initiation of drug.
Mycophenolate mofetil	Oral	500–1000 mg every 12 hr	Pancytopenia, lymphoma, infections	
Sirolimus	Oral	2 mg/m ² /day; trough goal, 5–15 ng/ml	Lymphoma, lung disease, opportunistic infections	Patients with the autoimmune lymphoproliferative syndrome have had a high response rate.
Immune globulin	Intravenous	500 mg/kg/day for 4 days or 1 g/kg/day for 2 days — most commonly as an adjunct to glucocorticoids or mycophenolate mofetil	Aseptic meningitis, renal insufficiency, hemolytic anemia	Responses are often transient, so immune globulin is not often used as a stand-alone drug.
Third-line treatment				
Azathioprine	Oral	1–2 mg/kg/day; maximum dose, 150 mg/day	Pancytopenia, infections, liver-function abnormalities	
Cyclosporine	Oral	5 mg/kg/day divided every 12 hr; target trough levels of >150 ng/ml and <300 ng/ml	Renal and hepatic dysfunction, lymphoma, hypertension	
Pulse-dose cyclophosphamide	Intravenous	500–1000 mg/m ² ; 1–3 doses every 2–3 wk	Pancytopenia, infection, secondary cancer, infertility	
Fourth-line treatment				
High-dose cyclophosphamide or autologous bone marrow transplantation	Intravenous	50 mg/kg of ideal body weight/day for 4 consecutive days followed by granulocyte colony-stimulating factor	Pancytopenia, severe infection, hemorrhagic cystitis, secondary cancer, alopecia, hyponatremia, cardiac toxicity	

* Splenectomy is also considered to be a second-line treatment. Associated adverse effects are thrombosis and bacterial infections (encapsulated organisms). Vaccination against *Haemophilus influenzae*, meningococcus, and pneumococcus 8 to 10 weeks before splenectomy is strongly recommended.

Second-Line and Other Treatments

Historically, splenectomy has been considered to be second-line therapy; however, owing to concerns regarding infection and thrombosis with splenectomy, rituximab is now preferred in patients with WAHA who are initially treated with glucocorticoid monotherapy and who do not have a response or who have disease that relapses after an initial response.³² Recent guidelines from the United Kingdom recommend rituximab over splenectomy.³³ In a meta-analysis of 21 observational studies that included 154 patients with primary or secondary WAHA, the overall response rate among patients with relapsed WAHA or disease that was refractory to rituximab was 79%.³⁴ Response can sometimes take several weeks, and the rate of relapse at 1 to 2 years ranges from 25 to 50%.³⁵

More than 50% of patients with relapsed or refractory WAHA have a response to splenectomy; however, of those who have a response, more than 25% have a relapse within a year; the longer-term durability of remission is unclear.^{2,29,36} Consequently, many hematologists prefer that patients try other relatively nontoxic therapies such as mycophenolate mofetil,³⁷ azathioprine, intravenous immune globulin, or cyclosporine before undergoing splenectomy (Table 1). Data are lacking to guide the order in which to use these drugs. Case reports have described good outcomes in patients with severe refractory WAHA who receive intermittent intravenous (pulse-dose) cyclophosphamide³⁸ or high-dose cyclophosphamide³⁹ or who undergo allogeneic bone marrow transplantation. Patients with WAHA associated with the autoimmune lymphoproliferative syndrome have been reported to have a good response to sirolimus.⁴⁰

AREAS OF UNCERTAINTY

Multicenter, randomized, controlled trials with long-term follow-up are needed to compare the benefits, risks, and costs of various treatments for WAHA and to guide how to sequence or combine them for the best outcomes. A number of targeted therapies are in development but are not approved for WAHA. Fostamatinib, a spleen tyrosine kinase inhibitor that prevents phagocytosis and immune activation in splenic macrophages, is approved for immune thrombocytopenia and is now being studied in WAHA (ClinicalTrials

.gov number, NCT03764618).⁴¹ Other targeted strategies, including the use of proteasome inhibitors (e.g., ixazomib; NCT03965624), B-cell receptor inhibitors (e.g., ibrutinib; NCT03827603), and complement inhibitors (NCT03226678), are also being studied.⁴²

GUIDELINES

The British Committee for Standards in Haematology has published a guideline for the management of WAHA.³³ This guideline is based largely on expert opinion, given the paucity of randomized trials. The present recommendations are largely consistent with this guideline, with the exception that it recommended glucocorticoid monotherapy as first-line treatment (it antedated one of the randomized trials that provided support for combined treatment with rituximab).³¹

CONCLUSIONS AND RECOMMENDATIONS

The woman described in the vignette has severe anemia, reticulocytosis, an elevated bilirubin level, and a positive direct antiglobulin test, consistent with WAHA. Given the hemoglobin level below 6 g per deciliter, I would immediately transfuse 1 to 2 units of ABO- and RhD-matched blood and monitor closely for evidence of a transfusion reaction (i.e., fever, chills, and worsening hemoglobinuria). I would promptly initiate treatment with glucocorticoids (starting with prednisone at a dose of 70 mg daily) and rituximab, on the basis of data from randomized trials providing support for the combination over glucocorticoid monotherapy.^{30,31} Given that the patient has dyspnea, tachycardia, and hypoxia, and recognizing the increased risk of venous thromboembolism associated with WAHA, testing is indicated to rule out this condition. I would monitor her hemoglobin levels every 8 hours until her symptoms improve and closely follow her lactate dehydrogenase levels and reticulocyte count. Additional blood transfusions may be necessary, with the goal of maintaining her hemoglobin level above 7 g per deciliter. Once her condition is stable, a workup for secondary causes of WAHA, including peripheral-blood flow cytometry and other testing as clinically indicated, is appropriate. She should be counseled that WAHA is often a chronic, relapsing condi-



tion, and additional therapies may be needed to achieve or maintain remission.

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Disclosure forms provided by the author are available with the full text of this article at NEJM.org.

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A	= 1 word
Dalton, MD 01622	= 3 words

As a further example, here is a typical ad and how the pricing for each insertion is calculated:

MEDICAL DIRECTOR — A dynamic, growth-oriented home health care company is looking for a full-time Medical Director in greater New York. Ideal candidate should be board certified in internal medicine with subspecialties in oncology or gastroenterology. Willing to visit patients at home. Good verbal and written skills required. Attractive salary and benefits. Send CV to: Reply Box 0000, NEJM.

This advertisement is 58 words. At \$9.80 per word, it equals \$568.40. Because a reply box was requested, there is an additional charge of \$75.00 for each insertion. The price is then

\$643.40 for each insertion of the ad. This ad would be placed under the Chiefs/Directors/Department Heads classification.

How to Respond to NEJM Box Numbers

When a reply box number is indicated in an ad, responses should be sent to the indicated box number at the address under "Contact Information."

Classified Ads Online

Advertisers may choose to have their classified line and display advertisements placed on NEJM CareerCenter for a fee. The web fee for line ads is \$115.00 per issue per advertisement and \$190.00 per issue per advertisement for display ads. The ads will run online two weeks prior to their appearance in print and one week after. For online-only recruitment advertising, please visit nejmcareercenter.org for more information, or call 1-800-635-6991.

Policy on Recruitment Ads

All advertisements for employment must be non-discriminatory and comply with all applicable laws and regulations. Ads that discriminate against applicants based on sex, age, race, religion, marital status or physical handicap will not be accepted. Although the *New England Journal of Medicine* believes the classified advertisements published within these pages to be from reputable sources, NEJM does not investigate the offers made and assumes no responsibility concerning them. NEJM strives for complete accuracy when entering classified advertisements; however, NEJM cannot accept responsibility for typographical errors should they occur.

NEJM is unable to forward product and service solicitations directed to our advertisers through our reply box service.

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OptumCare is committed to creating an environment where physicians focus on what they do best: care for their patients. To do so, OptumCare provides administrative and business support services to both its owned and affiliated medical practices which are part of OptumCare. Each medical practice part and their physician employees have complete authority with regards to all medical decision-making and patient care. OptumCare's support services do not interfere with or control the practice of medicine provided by the medical practices of any of their physicians.

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UNITEDHEALTH GROUP

Classified Ad Deadlines

Issue	Closing Date
March 26	March 6
April 2	March 13
April 9	March 20
April 16	March 27

Addiction Medicine

ADDICTION MEDICINE — Positions available in one-year ACGME-accredited fellowships graduating clinical experts, faculty, and change agents to meet one of America's greatest health needs. Find fellowships at American College of Academic Addiction Medicine. www.acaam.org

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INTERVENTIONAL CARDIOLOGIST — NJ licensed-Central New Jersey Cardiology practice seeking a confident, clinically skilled interventionalist with peripheral training to add to their diverse group of cardiologists. Multiple offices providing nuclear, echo, and vascular services, and privileged at two hospitals providing inpatient and outpatient cardiac care, Cath, EP, and interventions. Excellent opportunity leading to partnership in a well-established pioneer group. Excellent environment, benefits, and competitive salary. Visit our website at: nbcardiology.com. Send CV to: dhoffman328@yahoo.com; or fax to the attention of Diane Hoffman, at: 732-247-5529.

FULL- OR PART-TIME CARDIOLOGY — Interventional preferable. Must do general cardiology. 20 minutes from LA and the beach. Hospitals are STEMI receiving. Please forward CV to: Cardiomedical@att.net

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Family Medicine (see also IM and Primary Care)

MERCY INPATIENT MEDICAL ASSOCIATES, INC. (MIMA), DBA MERCY INPATIENT MEDICINE SERVICES (MIMS) — Has multiple positions available in Springfield, MA, for BE/BC (Board Eligible or Board Certified) Internal Medicine or Family Medicine Physicians to provide internal medicine medical care to hospitalized patients. Willingness to work night shifts as needed, required. Apply to: Daniele Howe, DASPR, Senior Physician and Advanced Practitioner Recruitment Specialist, JobCode: NHIMP20, Trinity Health of New England, 1109 Granby Road, Chicopee, MA 01020.

FAMILY MEDICINE PHYSICIANS — For Coos County Family Health Services in Berlin and Gorham, NH. Requires family medicine residency, BC/E American Board of Family Medicine, eligible for NH medical license. Send CV to: Ken Gordon, CCFHS, 54 Willow Street, Berlin, NH 03570; kgordon@ccfhs.org

Gastroenterology

BALTIMORE, MARYLAND — Large well-established GI single-specialty group looking for new associate. Therapeutic ERCP proficiency preferred but not required. One in seven call. For information regarding practice, please see: www.woodholmegi.com. Please e-mail resume: pisabel@woodholmegi.com

Hematology-Oncology

MEDICAL DIRECTOR/PRACTICING HEMATOLOGY/ONCOLOGY PHYSICIAN — Excellent full- or part-time opportunity for a practicing Hematology/Oncology Physician/Medical Director to practice in the heart of the beautiful Adirondack mountains of northern New York. This is a long established, hospital based oncology practice with exceptional support staff, a competitive salary, and an excellent benefits package. The Physician must have an unrestricted New York state license and be Board Certified. Reply to Joanne Johnson, at: 518-897-2706; or: jjohnson@adirondackhealth.org

Advertise in the next Career Guide.

For more information, contact:

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ads@nejmcareercenter.org

SOUTHERN CALIFORNIA — Immediate opening for a private Oncology Medical Group seeking highly motivated BE/BC Medical Oncologists in Riverside County. One hour east of Los Angeles. Excellent salary and benefits. Nice On-Call schedule, work environment, and team support. Must have an active California License to apply for this position. E-mail CV: oncposition@gmail.com

Hospitalist

PHYSICIAN (HOSPITALIST), MULTIPLE OPENINGS — Full-time position working for Lifespan Physician Group, Inc. ("LPG"), in Providence, RI, providing services at Rhode Island Hospital. Requirements include BE/BC in Internal Medicine or Family Medicine, eligibility for RI Medical License. Apply online at: www.lifespanceers.org by searching job number 9834.

Internal Medicine (see also FM and Primary Care)

KENTUCKY — Current opportunities exist for BE/BC Internal Medicine Physicians. J-1 and H-1B candidates welcome. These are hospital employed and can sponsor J-1 Waivers. Candidates should e-mail their CVs to: dbuecker@fuse.net

Nephrology

THE RENAL TRANSPLANT FELLOWSHIP PROGRAM — In Mayo Clinic, Florida, has an open fellowship position for the 2020-2021 academic year. Suitable applicants must be board certified/board eligible in General Nephrology. Position is open to J-1 Visa applicants who meet the requirements listed on the MCSGME admissions page. Mayo Clinic is an Equal Opportunity Employer. Interested applicants should complete the application process on the program's website. The deadline for application submission is April 1, 2020. Please contact: Inciang.Angela@mayo.edu for any questions.

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After participating in this activity, attendees will be able to:

- > Discuss the mutual challenges faced by practicing physicians and physician leaders.
- > Listen and communicate effectively as a leader and/or as a member of a team.
- > Apply negotiation and conflict resolution skills in your work.
- > Implement changes in your practice or organization that work for your style and the workplace.
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ACCREDITATION STATEMENT:

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the Massachusetts Medical Society and Physician Health Services, Inc. The Massachusetts Medical Society is accredited by the ACCME to provide continuing medical education for physicians.

AMA CREDIT DESIGNATION STATEMENT:

The Massachusetts Medical Society designates this live activity for a maximum of 17.00 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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mdrecruitment@bhs1.org or

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- Urology

If you would like more information please contact:

Diane Forte Willis
dfortewillis@emersonhosp.org
 phone: 978-287-3002
 fax: 978-287-3600

About Concord, MA and Emerson Hospital



Located in Concord, Massachusetts Emerson is a 179-bed community

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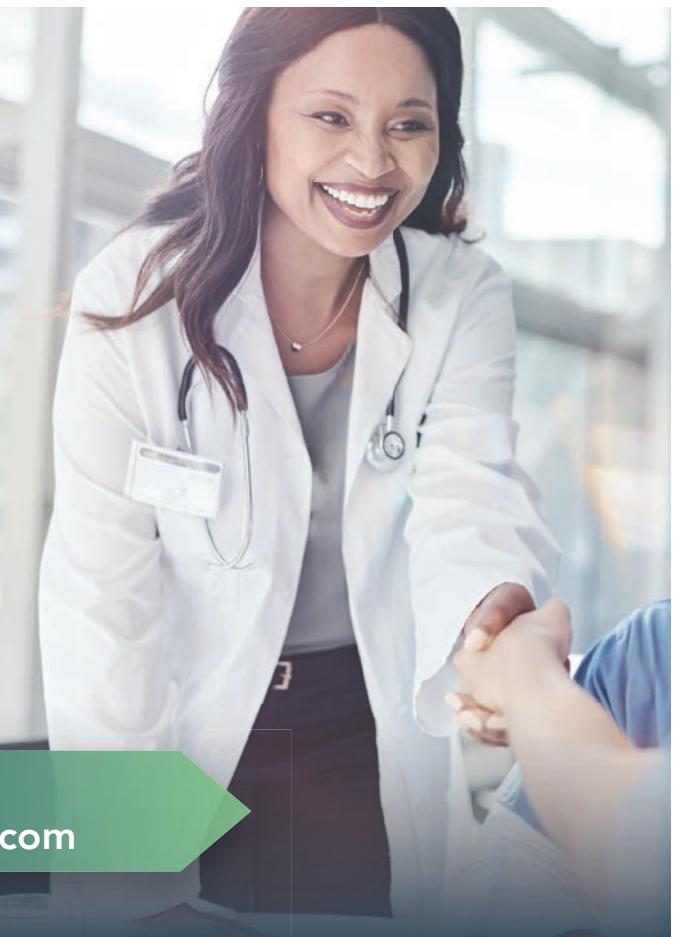
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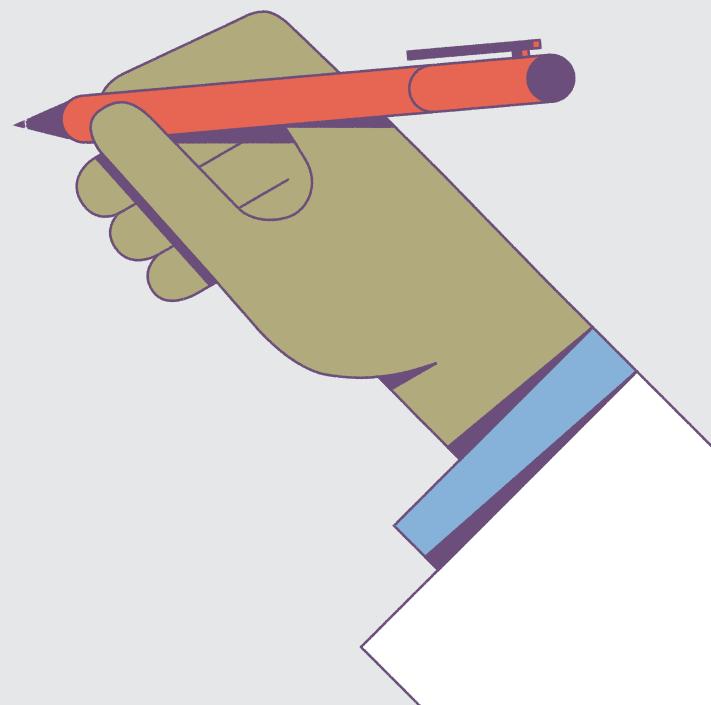
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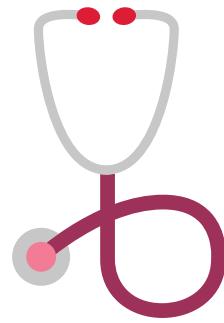
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- Partner with leadership that has a strong commitment to your career development.

Qualifications:

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For more information, please contact:

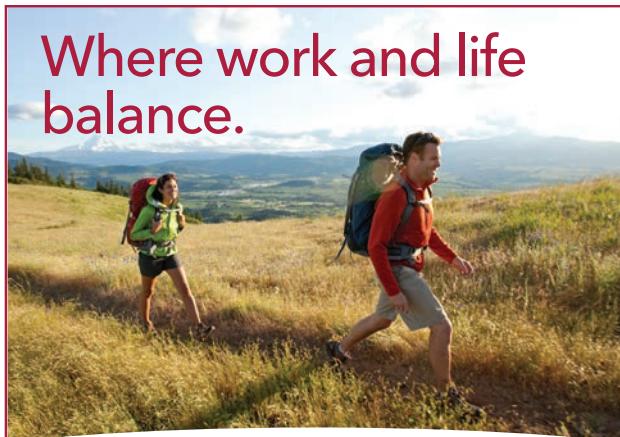
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Chair, Department of Medicine
c/o Pam Snyder
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Hospital Review
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- › Collaborative Team-Based Approach
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FDA U.S. FOOD & DRUG
 ADMINISTRATION

PHYSICIAN (Multiple Positions)

The FDA's Center for Biologics Evaluation and Research (CBER), Office of Tissues and Advanced Therapies (OTAT) is recruiting to fill multiple Physician positions. Apply today for this exciting career opportunity for qualified candidates with interest in the drug development, review of clinical trials, and critical interpretation of study design and clinical data analysis.

If you are a physician with primary care or specialty expertise in medicine and/or surgery, we are looking for you.

QUALIFICATIONS:

Must be U.S. citizen with Doctor of Medicine (M.D.), Doctor of Osteopathic Medicine (D.O.) or equivalent degree.

Official transcripts will be required prior to appointment. Applicants must possess current, active, full, and unrestricted license or registration as a Physician from a State, the District of Columbia, the Commonwealth of Puerto Rico, or a territory of the United States and 5 years of graduate-level training in the specialty of the position to be filled or equivalent experience and training. U.S. Public Health Service Commissioned Corps Officers may also apply.

SALARY: Salary will be commensurate with education and experience. An excellent federal employee benefits package is available. Team lead or supervisory positions may be filled through this advertisement, and candidates may be subject to peer review prior to appointment. Additional selections may be made within the same geographical area FDA-wide.

LOCATION: Silver Spring, MD

HOW TO APPLY: Submit electronic resume or curriculum vitae (CV) and supporting documentation to CBER.Employment@fda.hhs.gov. Supporting documentation may include: educational transcripts, medical license, board certifications. Applications will be accepted through **March 31, 2020**, although applicants will be considered as resumes are received. Please reference Job Code: **OTAT-19-07-NEJ**.

NOTE: This position may be subject to FDA's strict prohibited financial interest regulation and may require the incumbent to divest of certain financial interests. Applicants are strongly advised to seek additional information on this requirement from the FDA hiring official before accepting a position. A probationary period for first-time supervisors/managers may be required for supervisory positions.

DEPARTMENT OF HEALTH AND HUMAN SERVICES IS AN EQUAL OPPORTUNITY EMPLOYER WITH A SMOKE FREE ENVIRONMENT



Clinical Investigator Sarcoma Center at Dana-Farber Cancer Institute

The Sarcoma Center at Dana-Farber Cancer Institute (DFCI) and the Department of Medicine at Brigham and Women's Hospital are seeking a medical oncologist (MD or MD/PhD) for an academic investigator position focused on translational and clinical research in the context of expert subspecialty clinical care. Our Center has a strong multidisciplinary program with extensive ongoing research aimed at identifying new diagnostic tools, biomarkers and mechanism-based therapeutics for molecularly-defined subsets of sarcomas, gastrointestinal stromal tumors (GIST), and other mesenchymal neoplasms. The successful candidate will also engage in teaching medical students, house-staff, and fellows in the clinic, inpatient and laboratory settings. Appointment at the Instructor, Assistant or Associate Professor level at Harvard Medical School will be commensurate to academic accomplishment.

The Sarcoma Center is supported by the extensive core facilities and collaborative research resources of the Dana-Farber Cancer Institute, the Dana-Farber/Harvard Cancer Center, and the Ludwig Center at Harvard University. This position is based in the Department of Medical Oncology at DFCI and the Department of Medicine at Brigham and Women's Hospital. Academic appointment will be commensurate with experience, training and achievements. Candidates must be board-eligible or board-certified in medical oncology.

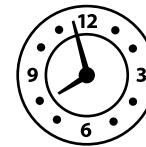
Interested individuals are encouraged to submit a curriculum vitae and the names and email addresses of three references to: Suzanne George, MD, Sarcoma Center, Dana-Farber Cancer Institute, 450 Brookline Avenue, Boston, MA 02115, Phone: 617.632.6563, Fax: 617.632.3408, Email: suzanne_george@dfci.harvard.edu

Dana-Farber Cancer Institute is an NCI-designated Comprehensive Cancer Center. We are an equal opportunity employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability status, protected veteran status, pregnancy and pregnancy-related conditions, or any other characteristic protected by law. Women and minority candidates are particularly encouraged to apply.

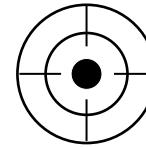


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Oncologist

OFFICE OF TISSUES AND ADVANCED THERAPIES (OTAT)
CENTER FOR BIOLOGICS EVALUATION AND RESEARCH (CBER)
U.S. FOOD AND DRUG ADMINISTRATION (FDA)
DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS)

The FDA's Center for Biologics Evaluation and Research (CBER), is seeking an oncologist, with expertise in either of pediatric, medical, surgical, radiation or gynecological oncology, to serve as a Physician in the Office of Tissues and Advanced Therapies (OTAT). This Office reviews, evaluates and approves most innovative cancer immunotherapeutics with curative potential. Examples include chimeric antigen receptor (CAR) T-cells, dendritic cells, adoptive T cell therapies, tumor neoantigen-based personalized medicine (vaccine or cell therapy), natural killer cells, oncolytic viruses, therapeutic cancer vaccines, and combinations of these immune-oncologic therapeutics with checkpoint inhibitors and other agents. The oncologist will be responsible for the review of clinical trial protocols and facilitation of clinical development of these products for the treatment of adult malignancies. This person will also represent the agency at meetings with academic and industry sponsors of basic and clinical oncology, and at medical conferences.

Qualifications:

Must be a U.S. citizen with a Doctor of Medicine (M.D.), Doctor of Osteopathy (D.O.), or equivalent degree from a school in the United States or Canada. The degree must have been approved by a recognized accrediting body at the time the degree was obtained.

A Doctor of Medicine or equivalent degree from a foreign medical school that provided education and medical knowledge substantially equivalent to accredited schools in the United States may be demonstrated by permanent certification by the Educational Commission for Foreign Medical Graduates (ECFMG), or a fifth pathway certificate for Americans who completed premedical education in the United States and graduate education in a foreign country. Candidates for Civil Service or U.S. Commissioned Corps must possess a valid license to practice medicine in any state in the U.S. It is highly desired that the prospective candidate has Board Certification or eligibility in Adult Oncology.

Salary:

Salary is equivalent to GP-602-14 plus physician market pay (Title 38). An excellent benefits package is also available. The position may also be filled by appointment in the U.S. Public Health Service, Commissioned Corps.

Location:

Positions are located on the FDA Campus in Silver Spring, Maryland

How to Apply:

1. Submit your electronic resume or curriculum vitae, cover letter, and supporting documentation to CBER Recruitment at cberemployment@fda.hhs.gov. Supporting documentation may include: bibliography, summary of research accomplishments, and names/contact information of three references. Please reference Job Code: **OTAT-20-03-NEJ**.
2. Create/Log-in to your [USAJOBS account](https://www.usajobs.gov) and review the official job opportunity announcement located on USAJobs.gov at <https://www.usajobs.gov/GetJob/ViewDetails/544721600>. Applications **MUST** be received by applying to the official job opportunity announcement located in the link above.

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UNIVERSITY OF MICHIGAN ACADEMIC PRIMARY CARE DIVISION OF GENERAL MEDICINE

The University of Michigan, Division of General Medicine, seeks BC/BE internists to join our expanding Academic Primary Care faculty. Duties for Primary Care faculty include providing direct patient care in an outpatient setting with teaching opportunities. There are also opportunities to engage in population management and quality/safety activities. Prior training or clinical experience in an academic teaching environment is preferred.

Excellent benefits:

- Compensation package with guaranteed salary plus incentive bonuses
- Relocation support
- Generous signing bonus

Interested individuals should forward their curriculum vitae via email to:

Laurence McMahon, MD, MPH, Chief, Division of General Medicine

GenMedFacultyRecruit@umich.edu

Application review will continue until the positions are filled.

PRIMARY CARE SITES

- Briarwood Medical Group
- East Ann Arbor Health Center
- West Ann Arbor Health Center
- Brighton Health Center
- Canton Health Center
- Northville Health Center
- Saline Health Center
- Taubman Health Center

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Cambridge Health Alliance (CHA) is an award-winning health system based in Cambridge, Somerville, and Boston's metro-north communities. We provide innovative primary, specialty, and emergency care to our diverse patient population throughout an established network of outpatient clinics and two full service hospitals. As a Harvard Medical School and Tufts University School of Medicine affiliate, we offer ample teaching opportunities with medical students and residents. We utilize fully integrated EMR and offer competitive compensation packages and comprehensive benefits for our employees and their families. Ideal Candidates will have a strong commitment to providing high quality care to our multicultural community of underinsured patients.

We are currently recruiting for the following departments and positions:

- ♦ **Psychiatry**
 - Adult Inpatient & Outpatient
 - Psychiatry Access Services
 - Primary Care Integration
 - Outpatient Child/Adolescent
 - Child Integration
- ♦ **Psychology**
 - Adult Outpatient
 - Child/Adolescent Outpatient
 - Primary Care Integration
 - Child/Adolescent Neuropsychology
 - Haitian Mental Health Program
 - Recover in Shared Experience (RISE)
- ♦ **Primary Care**
 - Regional Medical Director
 - Internal Medicine
 - Family Medicine
 - Med/Peds
 - Pediatrics
 - Float
- ♦ **Core Faculty Family Medicine**
 - Director, Maternity Education
 - Tufts Family Medicine Residency
- ♦ **Chief Medical Information Officer**
- ♦ **Department Chief, Surgery**
- ♦ **Plastic Surgeon**
- ♦ **Chief of Dental Services**
- ♦ **Division Chief, Otolaryngology**
- ♦ **General Otolaryngologist**
- ♦ **Pulmonary/Critical Care/ Sleep Medicine**
- ♦ **Urologist**
- ♦ **Vascular Surgeon**
- ♦ **General Surgeon**
- ♦ **Breast Surgeon**
- ♦ **Dermatologist**
- ♦ **Hospitalist/Nocturnist**
- ♦ **ICU/Nocturnist**
- ♦ **Moonlighter Hospitalists**
- ♦ **Pathologist**
- ♦ **Optometrist**
- ♦ **Physician Assistant**
 - Urology
 - Per Diem, OB/GYN
 - Primary Care

To apply please visit www.CHAProviders.org. Candidates may submit CV confidentially via email to ProviderRecruitment@challiance.org.
CHA Provider Recruitment – Tel: 617-665-3555/Fax: 617-665-3553

We are an equal opportunity employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability status, protected veteran status, or any other characteristic protected by law.

PHYSICIAN CAREERS AT The US Oncology Network

The US Oncology Network brings the expertise of nearly 1,000 oncologists to fight for approximately 750,000 cancer patients each year. Delivering cutting-edge technology and advanced, evidence-based care to communities across the nation, we believe that together is a better way to fight.

usonology.com.

To learn more about physician jobs, email physicianrecruiting@usonology.com



The US Oncology Network is supported by McKesson Specialty Health.
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✉ clinical.careers@jiahui.com

We are an equal opportunity employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability or veteran status.

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OptumCare is committed to creating an environment where physicians focus on what they do best: care for their patients. To do so, OptumCare provides administrative and business support services to both its owned and affiliated medical practices which are part of OptumCare. Each medical practice part and their physician employees have complete authority with regards to all medical decision-making and patient care. OptumCare's support services do not interfere with or control the practice of medicine provided by the medical practices of any of their physicians. Diversity creates a healthier atmosphere: OptumCare and its affiliated medical practices are Equal Employment Opportunity/Affirmative Action employers and drug-free workplaces. Candidates are required to pass a drug test before beginning employment. © 2020 OptumCare. All rights reserved.