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June 30, 2022

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Evaluating the Cultural Environment and Organizational Support in Physician Opportunities

Physicians should proceed from the premise that their questions are expected — and, ideally, welcomed

By Bonnie Darves

The pandemic has had far-reaching effects in many areas of physician practice — namely added stress, job-security concerns, and emotional and psychological challenges for physicians at the front lines of care. This sustained disruption in the practice environment has also prompted many physicians to take a deep look into what matters most to them. That, in turn, has impelled some to reevaluate — even reorder — their priorities for the jobs they're in or the new opportunities they're considering.

While a good cultural fit and practice support structure have always been important, those two considerations, along with work-life balance, have begun to eclipse compensation on the wish-list scale, recruiters are reporting. "Of course, what constitutes a good fit is personal and individual for each physician, and what's important for residents coming out might differ from priorities for career physicians. But what we're seeing, since the pandemic, is that physicians are placing a higher priority on work-life balance and family concerns in opportunities they're considering than they might have before," said Emerson Moses, MBA, regional director for Clinical Talent Acquisition in Optum Health's Northeast, North Central, and Tri-State regions. "Many physicians are deciding, based on what they've experienced and witnessed in the past 18 months, that it's very important to live near family."

Physicians who are seeking a first or subsequent practice opportunity should have more than a vague idea of what they desire in setting, culture, and practice support, before they start actively interviewing, according to Kelley Hekowczyk, director of Physician Recruitment and Credentialing for UCHealth Medical Group in Loveland, Colorado. "Employers assume that if you reach out, you know what you're looking for in the culture and what you want your practice to look like. Ideally, you'll have a pretty good idea of that when you come to the recruitment process, so that you can match up the qualities you're looking for," said Ms. Hekowczyk.

Recruiters can be essential in both helping physicians focus their preliminary, "pre-interview" questions around factors that help reveal the culture of an organization — and in answering those queries early in the process, Ms. Hekowczyk reminds physicians. "The list of information that we as recruiters try to provide candidates is constantly evolving, but we do provide details on things like schedules, coverage, call backup, and mentoring. However, assessing the family [flexibility] issue can be a tough one," she said, that's best addressed in site interviews and open discussions with prospective colleagues.

Do ask *all* the questions on your mind

Even though it's hard to assess culture and physician support from afar — especially when onsite interviews and those all-important dinners with prospective colleagues haven't been possible — there are ways to get a sense of the practice environment, Ms. Hekowczyk maintained. She urges job-seeking physicians to review the organization's website thoroughly for evidence of cultural characteristics and then set one-on-one conversations with prospective physician partners. This can help physicians determine, she said, "whether the practice environment is one that they'll likely thrive in." In her organization, Ms. Hekowczyk noted, there's a strong emphasis on ensuring that candidates have ample opportunities to ask questions of their prospective colleagues — and all questions are fair game if they're important to the physician.

One of those culture questions has taken on new importance of late, Ms. Moses reports, and it's one that she thinks young physicians should ensure they ask: What is your strategy around physician well-being? "To some extent, it's a generational thing. Seasoned physicians may be willing to work themselves to the bone to make good money, but that's not core to this newer generation — the Generation Y and millennial physicians," she said. "They're hard workers, but they're also committed to having work-life balance."

Ms. Moses cautions that if an employing entity's interviewers appear reluctant to answer the "physician well-being" question, or if the question is received negatively, that might be a sign that the organization isn't focused on physician well-being. "Don't be afraid to ask all your important questions about culture — those questions are very important to finding a good fit," she said.

Lynne Peterson, president of the Association for Advancing Physician and Provider Recruitment and a 30-year veteran of physician recruiting, believes that cultural fit is too important a consideration for it to be short-changed in the job-search process. "Physicians really need to look at both practice and organizational culture," said Ms. Peterson, senior director and ambassador of Provider Recruitment and Retention for Bluestone Physician Services in Stillwater, Minnesota. "At the practice level, that culture encompasses things like whether you like and trust prospective colleagues, and if you can be assured that they'll take care of your patients when you're not around."

Organizational culture is important for a different reason, Ms. Peterson explained. "You want to make sure that the organization truly supports the practice, that when executives talk to physicians, the physicians' voices are truly heard." Further, she said, physicians should try to find out, from prospective colleagues, whether "what the C-suite people say about doctors is borne out by physicians."

Assessing collegial environment and practice support

For invasive cardiologist Eks Wye Pollock IV, MD, at UCHealth in Fort Collins, Colorado, assurance of a culture of collegiality and having a good team were key considerations, along with a family-supportive environment, as he began looking for his first practice position. "That question was answered for me at each interview," he said of his experience at UCHealth, his first choice because of the university's standing and the practice's proximity to his extended family. "It was clear that the practice was collegial, and that the organization valued physician lifestyle and non-work time," he said. "I've since learned that other people I trained with aren't necessarily finding that in their jobs."

The team support in place became evident soon after Dr. Pollock started his job in 2019. Just a few months into the position, there was a death in his family. He emailed his colleagues, worried about getting his duties and patients covered while he was away. "Almost immediately, I received several emails from my team, and it was clear that everything would be taken care of," he said. "I was told when I joined that 'we're all here to help each other,' and I certainly experienced that."

Mary Ebbets, MS, a senior physician and Advanced Practice Provider (AAP) Recruiter at Cooley Dickinson Hospital, in Springfield, Massachusetts, echoes what Ms. Peterson says about teasing out the culture through pointed questions. But Ms. Ebbets also advises physicians leaving residency to ask about the overall practice-support environment, which can be key to ensuring both a good fit and longevity in the position. Some new residency graduates are reluctant to do that for fear that they'll be seen as self-serving or demanding, recruiters report, but that's generally not the case. Ms. Ebbets suggested the following as good starting questions for gauging practice support:

- Will I have "mentor-type" access to senior physician colleagues?
- What kind of nursing and administrative support will I have in my daily practice life — is there a dedicated medical assistant and do we have APP support?
- What is the group's or hospital's policy regarding schedule flexibility for addressing family-life needs or requests?

"Remember that interviewing is like dating, so physicians should vet the organization just as much as the organization vets them — which means that physicians should ask all of the above questions," Ms. Ebbets said. "The only types of questions that cause my organization pause are questions or requests around patient volumes that are below the industry standard — such as physicians saying that they only want to see 10 patients a day."

Ms. Ebbets added that perhaps the most important question physicians should ask in assessing culture is: Why is this position available? If it's a "replacement" position, she said, physicians should be prepared to ask why the previous physician left and should expect a candid answer. If it's a new position based on growth, Ms. Ebbets added, the organization should be able and willing to supply market data to support the addition of another physician.

In posing key questions, be candid but cordial

In terms of how to phrase probing questions, Tom Farrington, MS, Director of Physician and Provider Services for Franciscan Physician Network in suburban Chicago and Indiana, offers some observations and guidance. First, he says, physicians should know that questions about work-life balance are common — and expected — these days. Likewise for detailed questions about training support and orientation, and the administrative support available. "I also believe that physicians want to know that demands on them to do burdensome administrative tasks are going to be minimal," he said.

Mr. Farrington suggests posing such questions in a diplomatic manner. "Questions phrased as 'help me understand the practice schedule, how call works, and the frequency of calls during coverage' are all fair questions that provide physicians information without them making overt demands," he said. On the other side of the spectrum, if physicians are asked to describe their ideal practice setting, they should supply a thoughtful, candid response. "That question is surely an opening for physicians," he said, to talk openly and honestly about what's important to them.

When internist Luis Gerald Lora Garcia, MD, was seeking his first post-residency practice position, he had specific needs and he made those known early in his search process. First, because he is on a J-1 Visa, he wanted to ensure that any practice he joined would be amenable and prepared to process his immigration. He also wanted to be close to a big city and to ensure that there would be some schedule flexibility and support from colleagues who were seeking a structure that enabled time for family and lifestyle pursuits.

In the end, Dr. Garcia found both at Franciscan Health's Valparaiso, Indiana, primary care clinic, the Franciscan Physician Network Health Center. He practices four 10-hour days, and he has enjoyed his proximity to Chicago and his ability to travel around the region and explore — activities he didn't have time for in residency. He admits that he has also found both a supportive culture and a collegial environment, and the ability to pursue his preferred clinical interests of cardiovascular-disease reduction and diabetes management. "It has worked out well so far, and I'm glad I was able to find an opportunity that meets my needs," he said.

When physicians do ask about what the clinical and administrative support they'll receive, they should expect detailed answers, according to Tammy Hager, MBA, Executive Director of Physician Recruitment and Privileging for Surgical Affiliates Management Group, Inc., in Sacramento, California. "When you're asking about staffing, you really should expect and be given some numbers behind that," she said, not just blanket statements suggesting that support will be adequate.

On the topic of collegiality, physicians should ask questions in a manner that calls for somewhat specific answers. Ms. Hager suggests inquiring about outside-work activities that physicians engage in, such as group dinners, boating excursions, or family get-togethers, for example.

For physicians who are trying to figure out whether they'll be a good fit within the existing group, it's not out of order to ask questions that will give the candidate a sense of the physician partners' diversity, backgrounds, and families. "If ethnic diversity is important to you, you might ask the recruiter where the other physicians live and where their children go to school. I think it's possible to do that without coming across as racially biased," she said. She notes that the Association of American Medical Colleges (AAMC) maintains and publishes data on race, ethnicity, and gender patterns in US medical education and the practice patterns of the physician workforce in its Diversity in Medicine: Facts and Figures reports.

Finally, all interviewees agreed that while assessing culture and practice support are hugely important, physicians should ensure that the organization they're considering joining has the financial viability to keep them gainfully employed for the long term. That's become especially important in the wake of the pandemic's initial impact on health care organizations of all sizes. "More experienced physicians ask about things like whether there's a planned merger or acquisition that might affect their job, and whether there was an issue with layoffs or furloughs during the pandemic," Ms. Hekowczyk said. "But the younger ones don't tend to ask questions about the organization's financial position, but they should."

Ms. Moses urges physicians to do some research on the financial and market position — hospitals and health systems compile and publish data on their operating ratios, revenues, and cash reserves, for example — of any organization they're evaluating. Ideally, candidates will conduct their research before the interviews begin. Annual reports and other public published data are a good start, and local media coverage on market factors and financial problems can be telling, she said. "When you're doing this research, Google can be your friend, but physicians also shouldn't be afraid to ask questions about how the organization is positioned financially," she said, especially if it's a private practice.

Unusual Parts of Compensation Packages

By Nisha Mehta, MD, *a physician leader whose work focuses on physician empowerment, community building, and career longevity in medicine*

In speaking to so many about their job offers, I've realized that we're often myopic in terms of what we think can be negotiated when discussing a contract. There are the traditional things everyone asks about — salary, bonus structure, call responsibilities, vacation schedule, and signing bonuses, to name a few. However, when talking to people about what their ideal job looks like, there's often more random things on a wish list. What we fail to realize is that those are all things that can be asked for, but that nobody else would even think to offer them to sweeten the deal.

Some examples of these?

- An early start and end to the day
- Dedicated academic or administrative time
- Unique FTEs such as 0.7 or unique structuring of their FTEs, such as alternating four- and two-day weeks
- Bonuses for creation of alternative revenue streams for the practice
- Changes in the amount of allotted CME money or money for office furnishings or technology
- The ability to work from home a certain number of days a week (for example, doing telehealth)
- A specified patient population according to their area of academic interest/desired practice panel
- An increased number of support staff such as scribes or medical assistants
- The speaker system which you will have in your operating room

Some of these may sound silly to you to ask for, but I know of physicians who have asked for and received these things as part of their contract negotiations. Remember, what brings happiness in your day-to-day life as a physician is very individualized, and therefore, asking for those things that will enhance your satisfaction (e.g., career longevity) at that job is not unreasonable.

Of course, asking for these things can be an art form. Understand that every institution has different flexibility or bandwidth for accommodating individual requests. You may want to look at what other accommodations have been made for other physicians on staff as precedent for what may be realistic prior to compiling your list of asks. Also, be careful about how many of these additional things you ask for. If you have 10 unusual requests, even if they are relatively minor, the message to the employer could be that this is a pattern of behavior where you will always be asking for exceptions to normal operating procedures.

Figure out which ones mean the most to you. Also figure out which ones are going to be harder to negotiate later, as your negotiating power is always greatest before you sign a contract. Be prepared to justify the asks so they understand why they would make accommodations. For example, if you are able to clearly articulate why something will lead to increased efficiency, lead to better patient outcomes, or contribute to your career longevity and prevent burnout, this would help your case. It would also help them to explain to others who question why these special accommodations were granted.

As demographics in medicine change, unusual asks will become more frequent. The sustainability of our health care workforce requires out-of-the-box solutions, and for some of you, these may be part of them! If you don't ask, you won't get it.

CLINICAL PRACTICE

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

Nonspecific Low Back Pain

Alessandro Chiarotto, P.T., Ph.D., and Bart W. Koes, Ph.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 authors' clinical recommendations.*

From the Department of General Practice, Erasmus University Medical Center, Rotterdam (A.C., B.W.K.), and the Department of Health Sciences, Faculty of Science, Vrije Universiteit Amsterdam, Amsterdam (A.C.) — both in the Netherlands; and the Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense (B.W.K.). Dr. Chiarotto can be contacted at a.chiarotto@erasmusmc.nl or at the Department of General Practice, Erasmus University Medical Center, Dr. Molewaterplein 40, 3015 GD Rotterdam, the Netherlands.

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CME at NEJM.org

A 37-year-old man reports he has had pain in his lower back for the past month. The pain is worse when he gets up in the morning, when it is associated with stiffness in the lower back. The patient has a history of episodes of low back pain that have typically occurred after vigorous sports activities. His medical history is otherwise unremarkable; he has not previously sought medical care for the pain. Physical examination shows that the patient's range of motion is limited on lumbar forward bending, and there is tenderness on palpation of the lower back. There are no neurologic deficits. How would you evaluate and treat this patient?

THE CLINICAL PROBLEM

Low back pain, typically defined as pain below the costal margin and above the inferior gluteal folds, with or without leg pain,[1] is worldwide the most prevalent and most disabling of the conditions that are considered to benefit from rehabilitation.[2] In a systematic review that included 165 studies from 54 countries, the mean point prevalence of low back pain in the general adult population was approximately 12%, with a higher prevalence among persons 40 years of age or older and among women; the lifetime prevalence was approximately 40%.[3]

Low back pain is classified as specific (pain and other symptoms that are caused by specific pathophysiological mechanisms of nonspinal or spinal origin) or nonspecific (back pain, with or without leg pain, without a clear nociceptive-specific cause).[4] Nonspinal causes of specific low back pain include hip conditions, diseases of the pelvic organs (e.g., prostatitis and endometriosis), and vascular (e.g., aortic aneurysm) or systemic disorders; spinal causes include herniated disk, spinal stenosis, fracture, tumor, infection, and axial spondyloarthritis. Lumbar disorders with radicular pain due to nerve-root involvement have a higher prevalence (5 to 10%) than other spinal causes; the two most frequent causes of such back pain are herniated disk and spinal stenosis.[5] The overall prevalence of the other spinal disorders is low among patients with acute low back pain. For example, among 1172 patients who presented to primary care clinicians in Australia with acute low back pain, only 11 (0.9%) were found to have serious spinal conditions (mostly fractures) during 1 year of follow-up.[6] The authors of a Dutch study that involved primary care patients reported axial spondyloarthritis in almost one quarter of adults 20 to 45 years of age who presented with chronic low back pain,[7] although these findings have not been replicated.

In contrast to low back pain caused by specific identifiable causes, nonspecific

An audio version of this article is available at NEJM.org

KEY CLINICAL POINTS

NONSPECIFIC LOW BACK PAIN

- Nonspecific low back pain is diagnosed on the basis of the exclusion of specific causes, usually by means of history taking and physical examination.
- Imaging is not routinely indicated in patients with nonspecific low back pain.
- Most patients with an acute episode of nonspecific low back pain will recover in a short period of time.
- Education and advice to remain active are recommended for patients with acute or chronic low back pain.
- For chronic low back pain, exercise therapy and behavioral therapy represent first-line options, with medications considered to be second-line options.

low back pain probably develops from the interaction of biologic, psychological, and social factors,[4] and it accounts for approximately 80 to 90% of all cases of low back pain.[1] Low back pain is usually classified according to pain duration as acute (<6 weeks), subacute (6 to 12 weeks), or chronic (>12 weeks).[8]

RISK FACTORS

Risk factors for an episode of nonspecific low back pain include physical risk factors (e.g., prolonged standing or walking and lifting heavy weights), an unhealthy lifestyle (e.g., obesity), psychological factors (e.g., depression and job dissatisfaction), and previous episodes of low back pain.[9] In a case–crossover study that included 999 patients with sudden-onset acute low back pain, performance of manual tasks (e.g., those involving heavy loads or awkward postures) and distraction during an activity or task were identified as triggers of a new episode of pain.[10]

NATURAL HISTORY AND PROGNOSIS

Low back pain is increasingly understood to be a long-lasting condition with a variable course rather than isolated, unrelated episodes. According to a systematic review of prospective inception cohort studies (33 cohorts and 11,166 patients) that were conducted mainly in primary care and involved a variety of approaches to treatment,[11] new-onset episodes of low back pain generally abated substantially within 6 weeks, and by 12 months the average reported pain levels were low (6 [95% confidence interval {CI}, 3 to 10] on a scale of 0 to 100, with lower scores indicating less pain). Research on the course of nonspecific low back pain has identified three main pain-trajectory subgroups that emerge in the year after presentation and apply to both acute and chronic low back pain: a recovery trajectory in which the patient's condition improves rapidly or gradually toward a state of no or little pain, an ongoing trajectory in which the patient has moderate or fluctuating pain, and a persistent trajectory in which the patient perceives constant and severe pain (Fig. 1).[12] The majority of patients with acute low back pain (approximately 70%) have a pain trajectory that is prognostic for recovery, whereas this trajectory is less frequent in patients with chronic low back pain (approximately 30%), a population in which many patients (40 to 50%) have an ongoing pain trajectory.

According to a review of observational studies, factors that are consistently associated with poor outcomes (i.e., ongoing pain, disability, or both) in patients with low back pain included the presence of widespread pain, poor physical functioning, somatization, high pain intensity, long pain duration, high levels of depression or anxiety (or both), previous episodes of low back pain, and poor coping strategies.[13] An observational study with 5 years of follow-up that involved 281 patients with nonspecific low back pain showed higher risks of a persistent pain trajectory among patients with high pain intensity (relative risk ratio per unit increase, 1.87; 95% CI, 1.33 to 2.64), low socioeconomic status (relative risk ratio, 5.39; 95% CI, 1.80 to 16.2), negative illness perceptions (negative cognitive and emotional responses to low back pain) (range of relative risk ratio per unit increase, 0.83 [95% CI, 0.71 to 0.97] to 1.19 [95% CI, 1.06 to 1.34]), and passive coping behaviors (helplessness and reliance on others with regard to coping with low back pain) (relative risk ratio per unit increase, 1.90; 95% CI, 1.17 to 3.08).[14]

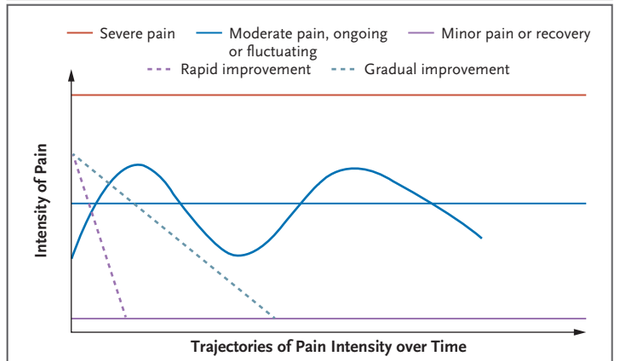

Figure 1. Simplified Principal Trajectories of Pain Intensity among Patients with Low Back Pain.

Adapted from Kongsted et al.[12]

STRATEGIES AND EVIDENCE

DIAGNOSIS AND EVALUATION

Diagnosis of nonspecific low back pain is made after specific disorders of spinal and nonspinal origin are ruled out. A detailed history taking and physical examination can point to spinal conditions or nonspinal conditions that may lead to specific intervention. The history should include attention to red flags (e.g., history of cancer or trauma, parenteral drug use, long-term glucocorticoid use, immunocompromise, fever, and unexplained weight loss), since their presence warrants consideration of an occult serious diagnosis (e.g., cancer, infection, or inflammatory disease) and close follow-up, although only some of these historical features have been shown to be useful predictors of such serious diagnoses. For example, in systematic reviews, a strong clinical suspicion for cancer[15] or a history of cancer[15,16] has been associated with an increased likelihood of a malignant condition, whereas other classic red flags (e.g., unexplained weight loss or fever) did not substantially affect the post-test probability of cancer.[15] Older age (>70 years), trauma, and the prolonged use of glucocorticoids have been associated with a high specificity for and considerable increased probability of spinal fracture, with the highest probability of fracture seen when multiple features are present.[16] History taking should also elicit whether pain is limited to the lower back or is more widespread; the latter may point to other conditions, such as fibromyalgia.

If a herniated disk is suspected, a positive ipsilateral straight-leg-raising test (in which pain results when the leg on the side of the back or leg pain is raised) is highly sensitive (in 92% of patients), and a positive contralateral straight-leg-raising test (in which pain is produced when the leg opposite the side of the back or leg pain is raised) is highly specific (in 90% of patients).[5] In the case of radiculopathy, a neurologic evaluation can rule out weakness, loss of sensation, or decreased reflexes; if any of these features are present, referral to a specialist may be indicated. Other maneuvers on physical examination have generally low diagnostic accuracy for the identification of other sources of low back pain (i.e., facet joints, sacroiliac joints, and disks).[17,18]

Screening tools can be used to estimate the risk that acute nonspecific low back pain will become chronic. The Predicting the Inception of Chronic Pain (PICKUP) tool is a validated prediction model that estimates the risk of chronic low back pain on the basis of five measures (i.e., disability compensation, presence of leg pain, pain intensity, depressive symptoms, and perceived risk of persistent pain) among patients who have an initial episode of low back pain.[19] A meta-analysis of studies that assessed other screening questionnaires showed that the Subgroups for Targeted Treatment (STarT) Back screening tool and the Örebro Musculoskeletal Pain Questionnaire, although not informative predictors of chronic pain, are predictive of subsequent disability; the latter was also highly predictive of work absenteeism.[20] The use of these screening tools in practice allows for the early identification of patients who are at risk for persistent low back pain–related disorders and may guide treatment.[21]

IMAGING

Routine imaging is not recommended in patients with nonspecific low back pain. Systematic reviews of observational studies have shown inconsistent findings with regard to the association between abnormal imaging findings and low back pain (Table S1 in the Supplementary Appendix, available with the full text of this article at NEJM.org).[22,23] In a study that included patients 65 years of age or older who presented

with acute low back pain without radiculopathy, the use of early imaging (e.g., radiography, magnetic resonance imaging, or computed tomography) was not associated with improved patient outcomes at 1 year.[24] Nevertheless, imaging may be performed when informative red flags are present, when there is a neurologic deficit, or when persistent low back pain with or without nerve-root involvement does not abate with conservative care.

TREATMENT

Numerous randomized, controlled trials and systematic reviews have assessed the effectiveness of interventions for nonspecific low back pain. Tables 1 and 2 summarize the pooled effects on acute and chronic low back pain, respectively, and the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach to the certainty of evidence obtained from systematic reviews of randomized trials that assessed the interventions that have most frequently been evaluated by practice guidelines.[27-45] Overall, first-line treatments are currently represented by nonpharmacologic interventions, which should be prioritized before pharmacologic treatment is prescribed.[46]

Acute Low Back Pain

Patient education and advice to remain active should represent routine care for patients with acute low back pain.[46] Education may address the benign, nonspecific nature and favorable course of low back pain, and patients should be encouraged to continue with regular activities. A meta-analysis of randomized trials showed (with moderate-certainty evidence) that individual patient education, as compared with usual care or other control, although not effective for pain, was effective in reassuring patients and reduced primary care visits due to low back pain at 1 year.[47] Meta-analyses of randomized trials support the use of a few sessions of spinal manipulative therapy or acupuncture for the reduction of pain, although the certainty of evidence for spinal manipulative therapy is moderate and that for acupuncture is low.[30,33] Heat and massage therapy are without risks and are reasonable to try, although the benefit of these therapies is supported only by limited data.[31,32] Exercise therapy that is prescribed or planned by a health professional has not been shown to be effective in patients with acute low back pain (Table 1),[29] but may be considered in patients at risk for poor recovery, given evidence from randomized trials of the effectiveness of exercise therapy in alleviating chronic low back pain[46] (Table 2) and in reducing the risk of episodes of low back pain.[48]

Among pharmacologic interventions, acetaminophen was not shown to be effective in a large clinical trial (Table 1),[34] whereas nonsteroidal antiinflammatory drugs (NSAIDs) have shown benefit.[35] However, caution is advised in the use of NSAIDs in older adults and in patients with coexisting conditions such as renal disease. Topical NSAIDs (e.g., topical diclofenac) have been shown to have fewer adverse events than oral NSAIDs, but their efficacy has not been rigorously studied in patients with low back pain. Results of a meta-analysis of the effects of muscle relaxants suggested that the use of nonbenzodiazepine antispasmodics begun within the first 2 weeks of the onset of pain had positive effects, but the analysis was based on very-low-certainty evidence.[36] These and other muscle relaxant agents had no significant effect on pain or disability during longer follow-up and were associated with a higher risk of adverse events.[36] Given the lack of data and the associated risk of addiction, the use of opioids should be minimized; weak opioids (e.g., tramadol) may be considered for use in carefully selected patients.[46]

Chronic Low Back Pain

In patients with chronic low back pain, education should play a key role, with supervised exercise and behavioral therapy as other first-line therapeutic options. Head-to-head randomized, controlled trials that compared these approaches have shown similar beneficial effects on pain in the short term (with low-to-moderate-certainty evidence),[39] although the effects of exercise and behavioral interventions over longer follow-up are unclear as compared with the effects of usual care or other conservative interventions.[38,39] A recent systematic review with network meta-analysis that included more than 200 randomized trials of 11 different types of exercise showed that most types of exercise had beneficial effects on alleviating pain and improving functioning, as compared with minimal treatment.[49] As compared with other exercises, Pilates therapy (which is focused on isometric contractions of the core muscles, attention to body movement, and improved posture) and McKenzie therapy (which involves repeated movement directional exercises, postural training, and education about patients' self-management of pain) resulted in reduced pain and improved functioning.

Behavioral therapies include respondent therapy (which involves relaxation techniques to reduce the physiologic response to pain), operant therapy (which is aimed at ceasing positive reinforcement of pain behaviors and promoting

Table 1. Effectiveness of Interventions on Pain Intensity and Physical Functioning Outcomes at Immediate-Term Follow-up (0–4 Weeks) in Patients with Acute Nonspecific Low Back Pain.*

Intervention vs. Control	Pain Intensity			Physical Functioning		
	No. of Studies	Pooled Effect (95% CI)†	Evidence Certainty	No. of Studies	Pooled Effect (95% CI)†	Evidence Certainty
Conservative intervention						
Advice to stay active vs. bed rest[27]	3	−0.4 (−4.0 to 3.2)	Low	2	−3.5 (−1.1 to −5.9)	Moderate
Individual patient education vs. no intervention[28]	3	NS	Moderate‡	3	NS	Very low‡
Individual patient education vs. non-educational interventions[28]	6	NS	Low‡	6	NS	Very low‡
Exercise therapy vs. no intervention or sham[29]	3	0.6 (−11.5 to 12.7)	Low‡	3	−2.8 (−15.3 to 9.7)	Low‡
Exercise therapy vs. other conservative interventions[29]	7	−0.3 (−0.7 to 0.1)	Low‡	6	−1.3 (−5.5 to 2.8)	Low‡
Spinal manipulative therapy vs. sham or other interventions[30]	NK	−9.8 (−17.0 to −2.5)	Moderate	NK	−2.9 (−6.6 to 1.0)	Moderate
Superficial heat vs. sham or non-heated wrap[31]	1	−32.2 (−38.7 to −25.7)	Very low‡	2	−8.8 (−12.8 to −1.2)	Very low‡
Massage therapy vs. inactive interventions[32]	1	−24.8 (−37.0 to −12.8)	Very low	1	−6.0 (−12.7 to 0.7)	Very low
Acupuncture vs. sham[33]	2	−9.4 (−17.0 to −1.8)	Low‡	3	NS	Moderate‡
Pharmacologic intervention						
Acetaminophen vs. placebo[34]	1	1.5 (−1.3 to 4.3)	High	1	−1.9 (−4.8 to 1.0)	High
NSAID vs. placebo[35]	4	−7.3 (−11.0 to −3.6)	Moderate	2	−8.4 (−12.1 to −4.8)	High
Muscle relaxant vs. placebo						
Nonbenzodiazepine antispasmodic agent[36]	16	−7.7 (−12.1 to −3.3)	Very low	7	−3.3 (−7.3 to 0.7)	Very low
Antispastic agent[36]	1	−1.6 (−15.3 to 12.1)	Low	1	2.0 (−15.6 to 19.6)	Low
Benzodiazepine[36]	1	2.0 (−9.8 to 13.8)	Moderate	1	0 (−13.2 to 13.2)	Low
Opioid vs. placebo[37]§	0	—	Very low‡	0	—	Very low‡

* If data for more than one follow-up between 0 and 4 weeks were present, the follow-up closer to 1 week was used. NK denotes number of studies not known, NS no significant between-group differences reported in the individual trials and no pooled effect, and NSAID nonsteroidal antiinflammatory drug.

† A negative value indicates a pooled effect in favor of the intervention. When the pooled effect was calculated as a standardized mean difference, it was converted to a scale of 0 to 100 by multiplying the standardized mean difference by 20 for pain intensity and by 12 for physical functioning. These values approximately represent the standard deviations of the most-used instruments (i.e., numerical rating scale for pain intensity and Oswestry Disability Index[25] for physical functioning) for these constructs. When the pooled effect was calculated on a scale of 0 to 24 (Roland–Morris Disability Questionnaire[26]), it was converted to a scale of 0 to 100 by multiplying the effect by 4.17.

‡ Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) scores were calculated by the authors, not reported by pooled-study investigators.

§ No trials of opioids for the treatment of acute nonspecific low back pain are available.

Table 2. Effectiveness of Interventions on Pain Intensity and Physical Functioning Outcomes at Short-Term Follow-up (1–4 Months) in Patients with Chronic Nonspecific Low Back Pain.*

Intervention vs. Control	Pain Intensity			Physical Functioning		
	No. of Studies	Pooled Effect (95% CI)†	Evidence Certainty	No. of Studies	Pooled Effect (95% CI)†	Evidence Certainty
Conservative intervention						
Individual patient education vs. non-educational interventions[28]	1	NS	Moderate‡	2	NS	Moderate‡
Exercise therapy vs. no intervention or usual care[38]	26	−16.4 (−20.3 to −12.4)	Moderate	30	−7.4 (−9.2 to −5.6)	Moderate
Exercise therapy vs. other conservative interventions[38]	47	−8.6 (−13.1 to −4.1)	Moderate	44	−4.0 (−6.0 to −1.9)	Moderate
Behavioral therapy vs. waiting list[39]	5	−12.0 (−19.4 to −4.4)	Low	4	−4.4 (−10.4 to 1.6)	Low
Behavioral therapy vs. usual care[39]	2	−5.2 (−9.8 to −0.6)	Moderate	2	−2.4 (−4.9 to 0.2)	Moderate
Spinal manipulative therapy vs. sham[40]	8	−7.5 (−19.9 to 4.8)	Low	6	−8.8 (−16.2 to −1.3)	Low
Spinal manipulative therapy vs. guideline-recommended interventions[40]	17	−3.2 (−7.8 to 1.5)	Moderate	16	−3.0 (−4.9 to −1.1)	Moderate
Massage therapy vs. inactive interventions[32]	7	−15.0 (−18.0 to −12.0)	Low	6	−8.6 (−12.6 to −4.7)	Low
Massage therapy vs. active interventions[32]	12	−7.4 (−12.4 to −2.6)	Very low	6	−2.9 (−7.4 to 1.6)	Very low
Acupuncture vs. sham[41]	5	−10.0 (−17.2 to −2.8)	Low	3	−4.6 (−8.3 to −0.8)	Moderate
Acupuncture vs. no intervention[41]	3	−10.1 (−16.8 to −3.4)	Moderate	3	−4.7 (−8.6 to −0.7)	Moderate
Yoga vs. nonexercise intervention[42]	5	−4.5 (−7.0 to −2.1)	Moderate	7	−9.1 (−15.0 to −3.2)	Low
Yoga vs. exercise intervention[42]	1	−15.0 (−19.9 to −10.1)	Very low	2	−4.1 (−12.0 to 3.8)	Very low
Multidisciplinary rehabilitation vs. usual care[43]	9	−11.0 (−16.6 to −5.6)	Low	9	−4.9 (−7.4 to −3.8)	Moderate
Multidisciplinary rehabilitation vs. physical intervention[43]	12	−6.0 (−10.8 to −1.2)	Low	13	−4.7 (−8.2 to −1.2)	Low
Pharmacologic intervention						
Acetaminophen vs. placebo[34]§	0	—	Very low‡	0	—	Very low‡
NSAID vs. placebo[44]	6	−7.0 (−10.7 to −3.2)	Low	4	−3.5 (−5.4 to −1.7)	Low
Muscle relaxant vs. placebo						
Antispastic agent[36]	1	−5.4 (−13.7 to 2.9)	Very low	1	−3.2 (−8.3 to 1.8)	Very low
Other[36]	1	−19.9 (−31.5 to −8.3)	Moderate	1	−5.6 (−20.6 to 9.4)	Low
Antidepressant vs. placebo						
Serotonin–noradrenaline reuptake inhibitor[45]	4	−5.3 (−7.3 to −3.3)	Moderate	4	−3.5 (−5.2 to −1.9)	Moderate
Selective serotonin-reuptake inhibitor[45]	3	1.5 (−5.4 to 8.4)	Low	1	−2.2 (−8.1 to 3.7)	Low
Tricyclic antidepressant[45]	7	−10.0 (−21.5 to 1.6)	Very low	4	−12.9 (−26.5 to 0.6)	Very low
Opioid vs. placebo[37]¶	13	−9.0 (−11.7 to −6.2)	Very low	0	NA	NA

* If data for more than one follow-up between 1 and 4 months were present, the follow-up closer to 3 months was used.
† A negative value indicates a pooled effect in favor of the intervention. When the pooled effect was calculated as standardized mean difference, it was converted to a scale of 0 to 100 by multiplying the standardized mean difference by 20 for pain intensity and by 12 for physical functioning. These values represent approximately the standard deviations of the most-used instruments (i.e., numerical rating scale for pain intensity and Oswestry Disability Index[25] for physical functioning) for these constructs. When the pooled effect was calculated on a scale of 0 to 24 (Roland–Morris Disability Questionnaire[26]), it was converted to a scale of 0 to 100 by multiplying the effect by 4.17.
‡ GRADE scores were calculated by the authors, not reported by pooled-study investigators.
§ No trials of acetaminophen for the treatment of chronic nonspecific low back pain are available.
¶ In this study cited for opioid versus placebo, physical functioning was not a specified outcome, so pooled effect and evidence certainty for that outcome are not applicable (NA).

healthy behaviors, including exercise), and cognitive therapy (which focuses on identifying and modifying negative thoughts with regard to pain and disability); randomized, controlled trials comparing these therapies have shown they have similar effects on pain and functioning.[39] The choice of therapy from among conservative interventions should take into consideration the patient's preferences and other factors, such as out-of-pocket costs.

Other therapies for chronic low back pain include spinal manipulative therapy, massage therapy, yoga, and multidisciplinary rehabilitation.[32,42,43] A systematic review with moderate-certainty evidence showed no clinically relevant differences in effects on pain and functioning with spinal manipulative therapy as compared with recommended first-line options (Table 2).[40] Multidisciplinary interventions that combine physical and psychological components may be especially suited for patients with low levels of functioning and with psychosocial risk factors for poor outcomes, although data showing superior effectiveness for this patient group are lacking.[43]

There is at best moderate-certainty evidence to support various pharmacologic options for the management of chronic low back pain (Table 2). NSAIDs can be considered in patients at low risk, although the effects appear to be modest and are supported by low-certainty evidence.[44] Muscle relaxants and antidepressants (e.g., serotonin and norepinephrine reuptake inhibitors) may be used as adjuvant therapy in some patients, although they have had limited effectiveness (with evidence of moderate to very low certainty) (Table 2) and have potential risks.[36,45] The use of opioids should be limited to very carefully selected patients and only for short periods of time with appropriate monitoring.[46] Invasive therapies, such as epidural glucocorticoid injections and surgery, are rarely indicated for nonspecific low back pain.[46]

AREAS OF UNCERTAINTY

There is some controversy regarding the term "nonspecific" low back pain, since structures such as muscles, joints, or disks (or a combination of these) may be causing the pain but are not readily identified by means of history taking and physical examination. Some patients with nonspecific low back pain may have symptomatic spinal osteoarthritis; in contrast to osteoarthritis of the peripheral joints, there are no diagnostic criteria for spinal osteoarthritis, and data are needed to guide its diagnosis and management.

High-quality randomized trials are needed to assess the effects on pain and function of several interventions, including heat, massage therapy, NSAIDs (oral and topical), muscle relaxants, and opioids for acute low back pain and NSAIDs, muscle relaxants, and antidepressants for chronic low back pain. Also, data are needed to inform whether the effects of these or other interventions vary according to patient characteristics. A meta-analysis of individual patient data from 27 trials did not show clinically relevant modifiers of the effect of exercise on chronic low back pain.[50] In a trial involving patients with low back pain that compared usual care with care stratified according to prognosis (estimated with the use of the STarT Back tool; patients at low risk received minimal intervention, those at medium risk received physical therapy, and those at high risk received "psychologically informed" physical therapy), patients in the stratified-care groups had greater reduction of disability and low back pain–related health care costs than those who received usual care.[21] However, these positive findings were not confirmed by subsequent trials conducted in primary care settings in the United States.[51,52]

GUIDELINES

A previously published overview summarized the recommendations of 15 clinical practice guidelines for the management of nonspecific low back pain in primary care.[53] More recent guidelines (e.g., those of the American College of Physicians) have moved away from pharmacotherapy (owing to limited efficacy and risk of adverse effects) in favor of initial nonpharmacologic care for both acute and chronic low back pain.[54] The recommendations presented here are generally consistent with those guidelines.

CONCLUSIONS AND RECOMMENDATIONS

The patient described in the vignette is experiencing an acute episode of recurrent low back

pain. In the absence of worrisome findings on the history and physical examination, imaging would not be recommended. The PICK-UP tool or the Örebro Musculoskeletal Pain Questionnaire may be used to evaluate the patient for risk of the episode becoming chronic. The patient should be reassured of the very high likelihood that there is no serious condition causing his low back pain and of the anticipated favorable prognosis of the current episode. He should be encouraged to continue his regular activities, even if he has some pain when engaging in them. We would suggest considering the use of a heating pad (although this recommendation is based on limited data[31]); short-term use of NSAIDs may be helpful in the absence of contraindications. If the low back pain does not abate within 2 months after the first visit, we would recommend referral to a specialist for supervised exercise or behavioral therapy. We would consider referral for exercise therapy earlier if there is concern about a risk of the condition becoming chronic, given the evidence of the benefit of exercise in alleviating chronic low back pain and minimizing the risk of recurrent low back pain. We would engage in shared decision making with the patient, with treatment decisions guided by his preferences and priorities.

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

REFERENCES

1. Koes BW, van Tulder MW, Thomas S. Diagnosis and treatment of low back pain. BMJ 2006;332:1430-4.
2. Cieza A, Causey K, Kamenov K, Hanson SW, Chatterji S, Vos T. Global estimates of the need for rehabilitation based on the Global Burden of Disease study 2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet 2021;396:2006-17.
3. Hoy D, Bain C, Williams G, et al. A systematic review of the global prevalence of low back pain. Arthritis Rheum 2012;64:2028-37.
4. Hartvigsen J, Hancock MJ, Kongsted A, et al. What low back pain is and why we need to pay attention. Lancet 2018;391:2356-67.
5. Deyo RA, Mirza SK. Herniated lumbar intervertebral disk. N Engl J Med 2016;374:1763-72.
6. Henschke N, Maher CG, Refshauge KM, et al. Prevalence of and screening for serious spinal pathology in patients presenting to primary care settings with acute low back pain. Arthritis Rheum 2009;60:3072-80.
7. van Hoeven L, Luime J, Han H, Vergouwe Y, Weel A. Identifying axial spondyloarthritis in Dutch primary care patients, ages 20-45 years, with chronic low back pain. Arthritis Care Res (Hoboken) 2014;66:446-53.
8. Furlan AD, Malmivaara A, Chou R, et al. 2015 Updated method guideline for systematic reviews in the Cochrane back and neck group. Spine (Phila Pa 1976) 2015;40:1660-73.
9. Taylor JB, Goode AP, George SZ, Cook CE. Incidence and risk factors for first-time incident low back pain: a systematic review and meta-analysis. Spine J 2014;14:2299-319.
10. Steffens D, Ferreira ML, Latimer J, et al. What triggers an episode of acute low back pain? A case-crossover study. Arthritis Care Res (Hoboken) 2015;67:403-10.
11. da C Menezes Costa L, Maher CG, Hancock MJ, McAuley JH, Herbert RD, Costa LOP. The prognosis of acute and persistent low-back pain: a meta-analysis. CMAJ 2012;184(11):E613-E624.
12. Kongsted A, Kent P, Axen I, Downie AS, Dunn KM. What have we learned from ten years of trajectory research in low back pain? BMC Musculoskelet Disord 2016;17:220.
13. Artus M, Campbell P, Mallen CD, Dunn KM, van der Windt DAW. Generic prognostic factors for musculoskeletal pain in primary care: a systematic review. BMJ Open 2017;7(1):e012901.
14. Chen Y, Campbell P, Strauss VY, Foster NE, Jordan KP, Dunn KM. Trajectories and predictors of the long-term course of low back pain: cohort study with 5-year follow-up. Pain 2018;159:252-60.
15. Verhagen AP, Downie A, Maher CG, Koes BW. Most red flags for malignancy in low back pain guidelines lack empirical support: a systematic review. Pain 2017;158:1860-8.
16. Downie A, Williams CM, Henschke N, et al. Red flags to screen for malignancy and fracture in patients with low back pain: systematic review. BMJ 2013;347:f7095.
17. Hancock MJ, Maher CG, Latimer J, et al. Systematic review of tests to identify the disc, SIJ or facet joint as the source of low back pain. Eur Spine J 2007;16:1539-50.
18. Maas ET, Juch JNS, Ostelo RWJG, et al. Systematic review of patient history and physical examination to diagnose chronic low back pain originating from the facet joints. Eur J Pain 2017;21:403-14.
19. Traeger AC, Henschke N, Hübscher M, et al. Estimating the risk of chronic pain: development and validation of a prognostic model (PICKUP) for patients with acute low back pain. PLoS Med 2016;13(5):e1002019.
20. Karran EL, McAuley JH, Traeger AC, et al. Can screening instruments accurately determine poor outcome risk in adults with recent onset low back pain? A systematic review and meta-analysis. BMC Med 2017;15:13.
21. Hill JC, Whitehurst DG, Lewis M, et al. Comparison of stratified primary care management for low back pain with current best practice (STarT Back): a randomised controlled trial. Lancet 2011;378:1560-71.
22. Brinjikji W, Diehn FE, Jarvik JG, et al. MRI findings of disc degeneration are more prevalent in adults with low back pain than in asymptomatic controls: a systematic review and meta-analysis. AJNR Am J Neuroradiol 2015;36:2394-9.
23. Raastad J, Reiman M, Coeytaux R, Ledbetter L, Goode AP. The association between lumbar spine radiographic features and low back pain: a systematic review and meta-analysis. Semin Arthritis Rheum 2015;44:571-85.
24. Jarvik JG, Gold LS, Comstock BA, et al. Association of early imaging for back pain with clinical outcomes in older adults. JAMA 2015;313:1143-53.
25. Fairbank JC, Pynsent PB. The Oswestry Disability Index. Spine (Phila Pa 1976) 2000;25:2940-52.
26. Roland M, Morris R. A study of the natural history of back pain. I. Development of a reliable and sensitive measure of disability in low-back pain. Spine (Phila Pa 1976) 1983;8:141-4.
27. Dahm KT, Brurberg KG, Jamtvedt G, Hagen KB. Advice to rest in bed versus advice to stay active for acute low-back pain and sciatica. Cochrane Database Syst Rev 2010;6:CD007612.
28. Engers A, Jellema P, Wensing M, van der Windt DAWM, Grol R, van Tulder MW. Individual patient education for low back pain. Cochrane Database Syst Rev 2008;1:CD004057.
29. Hayden JA, van Tulder MW, Malmivaara A, Koes BW. Exercise therapy for treatment of non-specific low back pain. Cochrane Database Syst Rev 2005;3:CD000335.
30. Paige NM, Miake-Lye IM, Booth MS, et al. Association of spinal manipulative therapy with clinical benefit and harm for acute low back pain: systematic review and meta-analysis. JAMA 2017;317:1451-60.
31. French SD, Cameron M, Walker BF, Reggars JW, Esterman AJ. Superficial heat or cold for low back pain. Cochrane Database Syst Rev 2006;1:CD004750.
32. Furlan AD, Giraldo M, Baskwill A, Irvin E, Imamura M. Massage for low-back pain. Cochrane Database Syst Rev 2015;9:CD001929.
33. Lee J-H, Choi T-Y, Lee MS, Lee H, Shin B-C, Lee H. Acupuncture for acute low back pain: a systematic review. Clin J Pain 2013;29:172-85.
34. Saragiotto BT, Machado GC, Ferreira ML, Pinheiro MB, Abdel Shaheed C, Maher CG. Paracetamol for low back pain. Cochrane Database Syst Rev 2016;6:CD012230.
35. van der Gaag WH, Roelofs PD, Enthoven WT, van Tulder MW, Koes BW. Non-steroidal anti-inflammatory drugs for acute low back pain. Cochrane Database Syst Rev 2020;4:CD013581.
36. Cashin AG, Folly T, Bagg MK, et al. Efficacy, acceptability, and safety of muscle relaxants for adults with non-specific low back pain: systematic review and meta-analysis. BMJ 2021;374:n1446.
37. Tucker H-R, Scaff K, McCloud T, et al. Harms and benefits of opioids for management of non-surgical acute and chronic low back pain: a systematic review. Br J Sports Med 2020;54:664.
38. Hayden JA, Ellis J, Ogilvie R, Malmivaara A, van Tulder MW. Exercise therapy for chronic low back pain. Cochrane Database Syst Rev 2021;9:CD009790.
39. Henschke N, Ostelo RW, van Tulder MW, et al. Behavioural treatment for chronic low-back pain. Cochrane Database Syst Rev 2010;7:CD002014.
40. Rubinstein SM, de Zoete A, van Middelkoop M, Assendelft WJJ, de Boer MR, van Tulder MW. Benefits and harms of spinal manipulative therapy for the treatment of chronic low back pain: systematic review and meta-analysis of randomised controlled trials. BMJ 2019;364:l689.
41. Mu J, Furlan AD, Lam WY, Hsu MY, Ning Z, Lao L. Acupuncture for chronic nonspecific low back pain. Cochrane Database Syst Rev 2020;12:CD013814.
42. Wieland LS, Skoetz N, Pilkington K, Vempati R, D'Adamo CR, Berman BM. Yoga treatment for chronic non-specific low back pain. Cochrane Database Syst Rev 2017;1:CD010671.
43. Kamper SJ, Apeldoorn AT, Chiarotto A, et al. Multidisciplinary biopsychosocial rehabilitation for chronic low back pain. Cochrane Database Syst Rev 2014;9:CD000963.
44. Enthoven WTM, Roelofs PDDM, Deyo RA, van Tulder MW, Koes BW. Non-steroidal anti-inflammatory drugs for chronic low back pain. Cochrane Database Syst Rev 2016;2:CD012087.
45. Ferreira GE, McLachlan AJ, Lin C-WC, et al. Efficacy and safety of antidepressants for the treatment of back pain and osteoarthritis: systematic review and meta-analysis. BMJ 2021;372:m4825.
46. Foster NE, Anema JR, Cherkin D, et al. Prevention and treatment of low back pain: evidence, challenges, and promising directions. Lancet 2018;391:2368-83.
47. Traeger AC, Hübscher M, Henschke N, Moseley GL, Lee H, McAuley JH. Effect of primary care-based education on reassurance in patients with acute low back pain: systematic review and meta-analysis. JAMA Intern Med 2015;175:733-43.
48. Steffens D, Maher CG, Pereira LSM, et al. Prevention of low back pain: a systematic review and meta-analysis. JAMA Intern Med 2016;176:199-208.
49. Hayden JA, Ellis J, Ogilvie R, et al. Some types of exercise are more effective than others in people with chronic low back pain: a network meta-analysis. J Physiother 2021;67:252-62.
50. Hayden JA, Wilson MN, Stewart S, et al. Exercise treatment effect modifiers in persistent low back pain: an individual participant data meta-analysis of 3514 participants from 27 randomised controlled trials. Br J Sports Med 2020;54:1277-8.
51. Cherkin D, Balderson B, Wellman R, et al. Effect of low back pain risk-stratification strategy on patient outcomes and care processes: the MATCH randomized trial in primary care. J Gen Intern Med 2018;33:1324-36.
52. Delitto A, Patterson CG, Stevans JM, et al. Stratified care to prevent chronic low back pain in high-risk patients: the TARGET trial: a multi-site pragmatic cluster randomized trial. EClinicalMedicine 2021;34:100795.
53. Oliveira CB, Maher CG, Pinto RZ, et al. Clinical practice guidelines for the management of non-specific low back pain in primary care: an updated overview. Eur Spine J 2018;27:2791-803.
54. Qaseem A, Wilt TJ, McLean RM, Forciea MA. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. Ann Intern Med 2017;166:514-30.

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CARDIOLOGIST, F/T, SETAUKET, NY — Board Certified, NYS License. Well-trained noninvasive cardiologist and/or heart failure specialist. Benefits, PTO, 401K, and Competitive Salary. Apply: denise.fellows@stonybrookmedicine.edu

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Family Medicine (see also IM and Primary Care)

FAMILY MEDICINE PHYSICIAN — For Greater Seacoast Community Health and its clinics. Requires completion of FM residency, BC/E Family Medicine, eligible for state license. Send CV to: Rick Barton, HR Director, Greater Seacoast Community Health, 311 Route 108, Somersworth, NH 05878; RBarton@goodwinch.org

Hematology-Oncology

TEN-PHYSICIAN, INDEPENDENT ONCOLOGY-HEMATOLOGY SINGLE SPECIALTY GROUP — In southern New Hampshire seeks full-time and/or part-time BC/BE oncologist/hematologist. Close collaboration with academic programs and independent research program. The practice emphasizes clinical trials, patient support programs, and physician work-life balance. One/nine weekend call with inpatient hospitalist coverage. Appealing location, one hour from Boston, the White Mountains, and the ocean. Competitive compensation plus benefit package offered for this excellent practice opportunity. Send CV to: Eliza Browne, Chief Operating Officer: e.browne@nhoh.com or fax: 603-622-7438.

THRIVING PRIVATE ONCOLOGY PRACTICE WITH MULTIPLE LOCATIONS IN LOS ANGELES AREA — Looking for BC/BE Oncologists. Excellent compensation/benefits, nice work schedule, and easy weekend calls. Your inquiry will be kept confidential. Active California license required. CV to: socalonc@gmail.com or text: 909-973-6537.

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WASHINGTON, DC, SUBURBS — Busy and large, high-quality Nephrology practice in northern Virginia looking for a motivated and hard-working individual, FT/PT to join our practice. Please e-mail CV to: janiced@nanvonline.com

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Hematologist/Oncologist

The Department of Hematology/Oncology at the Icahn School of Medicine at Mount Sinai affiliated with NYC H+H/Queens is seeking a full time Hematologist/Oncologist for our teaching hospital based Cancer Center. We are seeking an energetic, highly motivated, and talented candidate to join our team.

Responsibilities entail 4 half day oncology clinics, 1 half day hematology clinic, and On-Call duties shared among the 3 other full time Hematologist/Oncologists (call taken from home, with rare emergency in-house consults). Consult service on in-patients is shared equally. Each Oncologist has a full time Oncology PA/NP working with them. All Oncologists have Academic appointment at the Icahn School of Medicine at Mount Sinai.

New York City Health + Hospitals Queens, an acute care facility, is part of the largest municipal healthcare system in the country and serves the most culturally diverse population in the world with a wide spectrum of medical conditions. It has a state-of-the-art Cancer Center with a PET/CT, MRI, Surgical Oncology, Radiation and GYN and GU Oncology all on site.

Successful candidates must be board certified/eligible in Internal Medicine, Hematology & Medical Oncology and licensed in the State of New York. Faculty appointment will be commensurate with years of experience and accomplishment. Compensation is competitive and proportionate with qualifications and excellent fringe benefits.

Please send CV along with a brief description of career interests and goals to:

Margaret Kemeny, M.D., Director of Cancer Center
Queens Hospital Center
82-68 164th Street, Room A5-31, Jamaica, NY 11432
Fax: (718) 883-6295
Email: kemenym@nychhc.org

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If you are interested in pursuing a position with the Emerson Hospital Hospitalist Service or one of the affiliated Primary Care Practices, please feel free to contact Diane Forte Willis at 978-287-3002 or by email dfortewillis@emersonhosp.org to discuss the opportunities available.

About Concord, MA and Emerson Hospital

Emerson Hospital located in historic Concord Massachusetts provides advanced medical services to more than 300,000 people in over 25 towns. We are a 179 bed hospital with more than 300 primary care doctors and specialists.

Our core mission has always been to make high-quality health care accessible to those that live and work in our community. While we provide most of the services that patients will ever need, the hospitals strong clinical collaborations with Boston's academic medical centers ensures our patients have access to world-class resources for more advanced care.

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