

Rehabilitation

Physiatrists as guides for rehabilitation care BY ALLISON AVERILL, M.D.



greatest degree possible. This means physiatrists don't specialize in one particular disease state, but rather across all rehabilitation specialties, making them natural coordinators of care. Psychiatry is focused not only on treating a person's symptoms but also on knowing how to manage these conditions in the broader context of the entire rehabilitation plan. This takes into consideration the medication regimen, types of therapies being provided, psychological needs and more.

Because their

COMPREHENSIVE MANAGEMENT of the needs of individuals with neurological disorders or musculoskeletal injuries is demanding, requiring the expertise of numerous clinicians working synergistically. This is particularly important for complex traumatic brain injuries (TBI), spinal cord injuries (SCI), neurosurgical conditions and amputations. Inclusion of physiatrists—sometimes called the primary care doctors

of persons with disabilities—in coordinated care delivery can help ensure patients are directed to the right intervention and in a timely fashion, thus increasing opportunities for meaningful patient outcomes.

BRANCHING OUT

The philosophic approach of psychiatry is to treat every patient with the goal to restore function and mobility to the

profession demands expertise spanning the entire field of rehabilitation and physical medicine, physiatrists tend to be effective and knowledgeable collaborators. The average family medicine or primary care physician usually has expertise in the medical management of conditions like hypertension and diabetes, but limited in-depth training in the nuances of how to manage rehabilitation needs, such as aspects of

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neurocognition, pharmacotherapy, spasticity, insomnia, pain, depression and anxiety.

Consulting with physiatrists prior to a limb amputation, for example, can offer surgeons insight into functional outcomes that can be achieved through rehabilitation. Such input from physiatrists has often led to changes in the planned level of amputation, resulting in greater preservation of the limb. The impact—which likely would enhance this person's ability to function more independently, return to work and experience improved quality of life—cannot be understated. Finally, physiatrists often work cooperatively with insurance payers to secure coverage for appropriate medications and therapies.

AHEAD OF THE CURVE

Empirical evidence confirms the importance of early rehabilitation for optimizing treatment goals, such as restoring function, relieving symptoms and re-establishing previous activities. Because of their unique role in overseeing and directing care, physiatrists who are actively engaged in the acute setting help facilitate early and appropriate intervention, whether to inpatient rehabilitation, sub-acute rehabilitation, skilled nursing facilities or back into the community. Accordingly, a central role of the physiatrist is to direct referrals to the appropriate provider. The immediate goal is to transition patients from the acute care hospital as efficiently and safely as possible. Rehabilitation should be initiated as quickly as can be tolerated. Even when patients cannot begin therapy right away because of medical instability, there are other factors and areas of functioning to evaluate that might respond to intervention, such as sleep disturbance, behavioral issues and regulation of medications. The sooner these can be addressed, the faster the patient can transition into, and begin benefiting from, rehabilitation.

ANTICIPATING NEEDS

Physiatry takes a long-term perspective based on a patient's overall health rather than on just the most immediate needs. At the acute stage, this means recognizing the need for physiatric management after an inpatient stay and calling in the appropriate specialists. When managing a patient with an SCI, for example, acute care is usually focused rightfully on medical stabilization. But once a patient is released from the hospital, treatment has to more broadly encompass multiple areas of functioning. A person with an SCI must have proper bladder management to prevent negative outcomes, like urinary tract infection or autonomic dysreflexia. Similarly, an individual with a TBI may be medically stable, but what if he or she is abulic or under-aroused? Physiatrists are trained to be able to successfully oversee a variety of such issues and triage accordingly.

PHYSIATRY AND OBAMACARE

An article in *Physical Medicine & Rehabilitation*¹ speculates how the evolving health care system, including current and coming changes in delivery and reimbursement, will affect physical medicine and medical rehabilitation, including physiatry. The authors suggest a potentially larger role is in store for physiatrists in primary care clinics because of incentivized payment plans for coordinated care. Physiatrists also might find their services highly utilized in patient-centered medical homes for individuals with SCI, TBI and other neurorehabilitation disorders with which primary care doctors likely will be less familiar.

Individuals who are discharged to home and to outpatient rehabilitation may still need physiatric management, which could entail adjusting medications or ensuring proper referral to other providers (e.g., a neurologist for residual cognitive symptoms from a TBI, or a psychiatrist to manage mood disturbance). Physiatrists may continue to work closely with patients throughout the continuum of care. Other times, their involvement may be limited to collaborating with the individual's primary provider and ensuring this clinician is aware of pertinent medical needs that could affect the patient's function or otherwise require changes in medication or the overall treatment plan.

LOOKING TO THE FUTURE

With advancements in medical science and treatments, more individuals survive accidents and injuries, resulting in a greater number of people living with disabilities. Consequently, the need for coordinated care and, in turn, for physiatry will likely grow as well, particularly given the increased visibility of integrated health care delivery models under the Affordable Care Act (see sidebar "Physiatry and Obamacare"). Ensuring that physiatrists work in close collaboration with their colleagues all along the care continuum—and that they serve as leaders of the rehabilitation team—increases the chance for better outcomes through earlier and more appropriate treatment.

¹ Melvin JL, Worsowicz G. What are the implications of accountable care organizations for physical medicine and rehabilitation practices? *PM R*. 2011 Nov;3(11):1068-71. doi: 10.1016/j.pmrj.2011.09.009.

² Boninger JW, Gans BM, Chan L. Patient Protection and Affordable Care Act: potential effects on physical medicine and rehabilitation. *Arch Phys Med Rehabil*. 2012 Jun;93(6):929-34. doi: 10.1016/j.apmr.2012.03.014. Epub 2012 Mar 26.



THE FUTURE OF ACA

Would you like to know more about how the Affordable Care Act could affect physical medicine and medical rehabilitation? An article² discussing potential impacts (co-written by Bruce M. Gans, M.D.) is available online at ncbi.nlm.nih.gov/pmc/articles/PMC3508768



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The doc who came in from the cold



REHABILITATION PHYSICIANS, like those in any other specialty, have always been able to choose from several models in which to practice: solo, same specialty group, multispecialty group, academic, hospital employment, or nonprofit practice organization employment.

However, current economic pressures, including rate reductions, value-based purchasing and retrospective denials, as well as an increasing administrative burden and overhead costs (think “meaningful use” electronic health record requirements) and greater industry consolidation, make it more difficult for small practices to

weather the tsunami of change.

This could explain why a 2012 survey from the American Academy of Physical Medicine and Rehabilitation found that about half its members were in salaried positions. This is similar to findings from the American Medical Association for physicians across all specialties.

The reality is that hospitals, health systems and large group practices are bulking up to increase market share, control overhead costs and ensure delivery capacity. About three-quarters of inpatient rehabilitation facilities are in acute care hospitals; the rest are freestanding. In many communities, the in-hospital units are partnering with rehabilitation hospital companies like Select Medical, while unaffiliated stand-alone hospitals have become acquisition targets. Although the physicians who work in these units and hospitals are, of course, connected to them in ways that mirror the relationships between all physicians and their community hospitals, I don’t see a strong movement to shift from the independent practitioner model when the freestanding hospital or in-hospital unit changes ownership.

It is true that physicians who leave private practice to become salaried employees have several incentives, including economic stability, regular work schedules, lifestyle improvements with less time on call, and access to benefits that smaller practices may be unable to provide.

On the other hand, they face numerous pressures and challenges, including the loss of autonomy that comes with a formal reporting structure; loss of control over the office environment, including the staff; tighter regulations; more bureaucracy; and less flexibility.

Physicians who practice physical medicine and rehabilitation should have a somewhat easier time with the shift from private practice to working for a hospital system given that they have traditionally had close ties to hospitals. In addition, they trained in rehabilitation hospitals or units.

Nonetheless, it is important that clinicians who sell their practices or leave private practice for salaried employment understand that they will still face obstacles. Some will be similar to those they experienced in their “old” world; others will be new.

The migration of rehabilitative physicians into employment arrangements with rehabilitation hospitals shows no sign of slowing, particularly as bundled payments and accountable care organizations take hold in the world of post-acute care.

The key to success when contemplating this type of change is being realistic.

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The evolution of commercialized rehabilitation technology: from the laboratory to the living room

Q & A WITH MICHAEL STUBBLEFIELD, M.D., AND GUANG YUE, PH.D.

THE GROWING AVAILABILITY of rehabilitation technology for use in patients' homes has great potential to improve the quality and scope of care. Beyond the convenience aspect, home-based technology also allows patients to be more active in preserving their self-management and self-care while optimizing their independence and functioning. But the journey from the laboratory to the commercial market can be long and fraught with legal, economic and logistical barriers.

Focus on Rehabilitation recently spoke with Michael D. Stubblefield, M.D., the national medical director for cancer rehabilitation for Select Medical and the medical director for cancer rehabilitation at Kessler Institute for Rehabilitation, and Guang Yue, Ph.D., the director of the Human Performance and Engineering Research program at Kessler Foundation, about the complexities involved in bringing ideas for rehabilitation technology to fruition. Understanding the factors involved in this potentially overwhelming process can inform future efforts to make the transition to the commercial market as successful as possible.

Focus on Rehabilitation: Can you generally describe the typical life cycle of a piece of rehabilitation technology as it is being developed for the commercial marketplace?

Michael Stubblefield, M.D.: The first step is identifying a problem. For example, we have been working on a specialized cervical collar for patients with head and neck cancer or for any patients with a neuromuscular disorder that would cause them difficulty in lifting their head. The problem is that most of the collars we already have, such as the Philadelphia Collar, are designed for accident victims. It's very constricting and can be hot and terribly uncomfortable. So we came up with an idea for a low-profile collar that is lightweight, low profile, cosmetically appealing, highly adjustable and supportive.

Then you get to the stage where you have to work out the design of the product, which can be very complicated. The next phase is testing it on patients as well as a control population, which means you need Institutional Review Board (IRB) approval. Once that's worked out and you're comfortable with your product, you need to get someone to produce it.

The whole process can take months or even years because many of the people who are trying to bring a product to market, like physicians or researchers, have never done so before. It's not our primary focus.

Focus: What do you see as the most prominent challenges clinicians and researchers face in getting their product to market?

Stubblefield: As I said, you really need help, because we're physicians, not engineers. While some physicians are very business-savvy and fight through the regulations on their own, most of us need help. You have to identify the individuals who can help solve your needs. You need legal help to make sure filings are correct. You need a patent attorney. You need manufacturing help, distribution help, marketing help.

Guang Yue, Ph.D.: It's important to make sure there's a rehabilitation need for the particular invention. Once you have completed this evaluation, the next step is to work with an attorney to get a patent to protect what is commonly called your intellectual property. The major expense for hiring an attorney to apply for a patent is to have this professional conduct an exhaustive search to make sure the product has not been published or awarded a patent. This attorney also can help estimate the potential demand for this new product. Kessler Foundation provides a resource to help us with this process.

Focus: You mentioned that most physicians or researchers don't have an extensive background in business. How can they ensure that they're following the correct process or that they're not omitting important steps if they have never done this before?

Stubblefield: Again, it's important to get help from people who do this for a living. You need to work with a manufacturer that has experience with your type of product. For instance, perhaps I have designed a device to improve mouth opening and to stretch the jaw. There are already companies out there that offer this technology. But let's say my device works better and is less expensive. I can take that product to the manufacturer of the existing devices and see if they want to collaborate.



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Then they would work with me on optimal ways to get the product into the marketplace. They may have existing markets for similar devices, or might bring in resources to figure out new pathways for distribution.

Yue: But few physicians or researchers remain involved at the manufacturing stage. Most often, they file a patent or patents with their inventions and sell their intellectual property to the manufacturers or companies so that when the manufacturer sells the device, the inventor earns a commission. Usually, the company does the market research and evaluates whether the patented idea has strong profit potential and economic viability before purchasing the property. Whether the invention gets manufactured really depends on the judgment of the manufacturer based on its research outcomes. Only a small portion of patented ideas ever make it to final distribution.

Focus: What economics factors need to be considered in order for a product to successfully reach market?

Stubblefield: Physicians need to know their market. You're bringing a product that's novel, so knowing your potential patients is important. You might be bringing a device to solve a problem that is minor or that affects only a small percentage of the population. In those cases a company won't want to make a device because it would be cost prohibitive to spend time and other resources building and marketing it.

Yue: Along with production costs, the amount charged to consumers for the products must also be considered. For example, the exoskeleton walking robot can help a person with paralysis stand and walk on his own. There are four major companies now that make commercially available robotic exoskeleton walking devices (only one company's product has been approved by the Food and Drug Administration for patients' use at home). But these can be expensive, ranging

from \$75,000 to more than \$100,000, with little or no cost currently offset by insurance. There also are other walking aids, electrostimulators to help people walk after a stroke, such as a device to treat foot drop. These are priced closer to a few thousand dollars.

Focus: What other advice can you offer a physician or researcher without business experience in helping to bring a product to market?

Yue: The newest technology doesn't have to be complex. The simpler, the better. It should be easy to use and, of course, effective, but it doesn't have to be technically complicated. Some technology looks good but doesn't function well, and that isn't helpful.

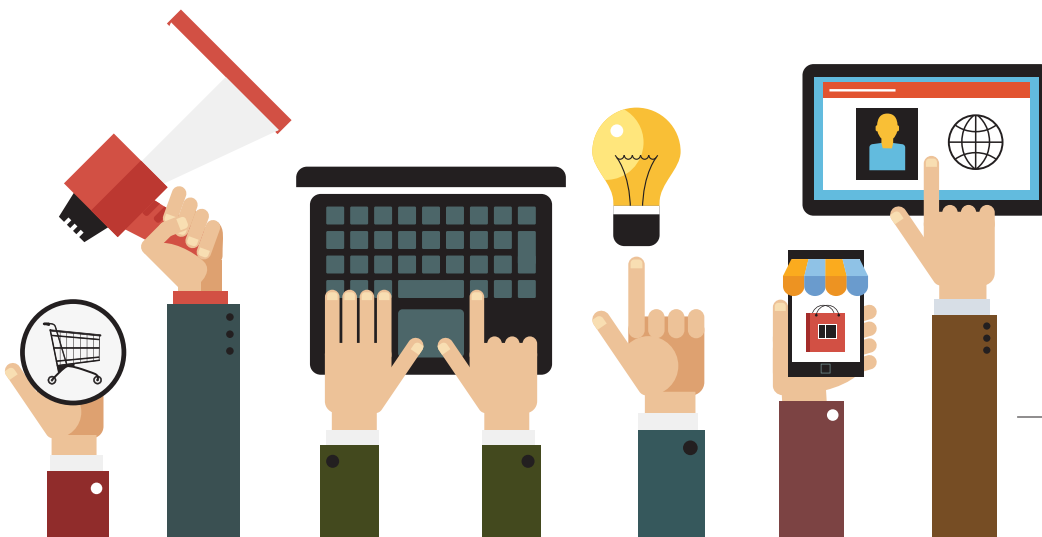
Stubblefield: I agree. "Keep it simple" is the best mantra. You have to pay attention to the entire package, but staying focused on the simplest solution is how some of the best inventions were created, starting with the wheel.

Yue: It's sort of like cellphones. Twenty years ago these devices were unwieldy and, compared with today, had fewer functions. Now, phones are much smaller with hundreds of applications immediately accessible. For devices like the exoskeleton, imagine where we might be in another 20 years. Someday, patients may wear these devices as easily as wearing a pair of pants. Technology advances so quickly—material gets lighter, and batteries get smaller and last longer. You just never know where the technology will take us next.

Using rehabilitation devices in the home increases independence, convenience and self-management, and allows for greater access to the technology than if they were available only in the clinic. And more exposure to therapies provided by "at-home" devices can potentially lead patients to better and faster recovery of functioning and greater independence.

"YOU HAVE TO IDENTIFY THE INDIVIDUALS WHO CAN HELP SOLVE YOUR NEEDS. YOU NEED LEGAL HELP TO MAKE SURE FILINGS ARE CORRECT. YOU NEED A PATENT ATTORNEY. YOU NEED MANUFACTURING HELP, DISTRIBUTION HELP, MARKETING HELP."

- MICHAEL STUBBLEFIELD, M.D.



Ushering in the next generation of rehabilitation physicians

BY BRUCE M. GANS, M.D.


THE HEALING PROFESSIONS have traditionally been associated with giving, serving and sacrificing personal needs for the good of others. For decades, that meant putting the patient first and your own life second. Physicians trained arduously in their youth to become doctors, then spent much of their careers working extremely long hours, including weekends, nights and holidays, to ensure their patients received the best care, regardless of the personal expense.

While the cost of becoming a physician has skyrocketed, along with the cost of health care, reimbursement and physician incomes have fallen or remained stagnant. This, among many other factors, seems to be changing the willingness of younger physicians, including millennials, to live the “always on” lifestyle of the baby boomer generation.

21%

OF PHYSICIANS WERE PRACTICING PART TIME IN 2014, COMPARED WITH 13 PERCENT IN 2005

(source: American Medical Group Association)

 THE NUMBER OF MEDICAL SCHOOL GRADUATES GOING INTO PHYSICAL MEDICINE AND REHABILITATION DROPPED

12.6%

BETWEEN 2008 AND 2013

(source: Association of American Medical Colleges)

THE MEDIAN COST OF FOUR YEARS OF MEDICAL SCHOOL FOR THE CLASS OF 2015:
PUBLIC SCHOOL:

\$226,447

PRIVATE SCHOOL:

\$298,538



(source: Association of American Medical Colleges)

These younger clinicians want a different life. A more balanced life. And while that is not a bad thing, it is definitely different from previous generations and will require rethinking how medical care is delivered.

THE CHANGING WORLD OF MEDICINE

The world of medicine, indeed, the world itself, has changed dramatically since my peers and I began practicing. The pace is faster; there is greater pressure to produce; communication technology, including social media and smartphones, have blurred the boundaries of work and personal life; and the growing amount of nonclinical time physicians must spend wrangling with insurance companies, completing paperwork and dealing with regulatory agencies has diminished the joy of practice for many.

In addition, the traditional paternalistic medical system in which physicians held the control and determined the direction of care has shifted to one in which the doctor serves as guide, adviser and confidant. It is also one in which our patients and payers place less trust in us.

All of which means we should not denigrate the millennials for their greater focus on quality of life. Instead, we must pay attention to their needs, particularly since fewer medical students are choosing our specialty. A 2014 report from the Association of American Medical Colleges (AAMC) found that the number of medical school graduates going into physical medicine and rehabilitation dropped 12.6 percent between 2008 and 2013.

So the question becomes: How do we create an environment in physical medicine and rehabilitation that continues to attract young doctors and ensure they are successful?

This younger generation is different. They expect technology in the workplace. Rather than complaining about the complexities of electronic health records, they complain if we don't have EHR. They are comfortable texting and emailing patients, providing virtual consultations

and delegating more responsibilities to other care providers like nurse practitioners and physician assistants.

They are also less interested in feeling that they need to treat the patient “for life,” or become the patient's prime provider. Instead, they are more comfortable working as part of a team, transitioning *their* patient to other providers as needed, embracing an “assembly line” model of medical practice rather than one in which they are the “sole craftsman.”

Plus, they want more flexible work arrangements. A report from the American Medical Group Association found that 21 percent of physicians today practice part time, compared with 13 percent in 2005.

At the same time, they seek more predictable and contained work hours. The rise of shift-working hospitalists demonstrates this change.

It is critical that rehabilitation hospital administrators acknowledge and accept these realities. That may mean having a physician work a late shift rather than expecting each doctor to stay as long as necessary for late-arriving patients; developing processes and procedures to better involve non-physician providers in patient care; and meeting the younger generation's technology expectations, including allowing them to access data from remote locations and, indeed, practice medicine virtually.

The physician shortage that the AAMC predicts in this country in the next decade is due, in part, to the changing intensity of work in which younger physicians are willing to engage. They are simply not as willing as older physicians to sacrifice their personal needs.

Thus, the institutions and organizations that employ physicians or provide venues in which these medical professionals practice will need to alter their expectations, work processes and even margins to deal with the new realities of the practice of medicine in the 21st century. Kessler Institute for Rehabilitation is adjusting and adapting, with the continuing goal of providing optimal care for patients in changing times.



Medication reconciliation in the rehabilitation hospital

BY URI ADLER, M.D., AND JOSEPH BRAVIK, M.S., R.PH.

MEDICATION ERRORS are unfortunate but preventable events that can lead to an increased risk of patient harm. While all health care facilities must be vigilant for these occurrences, the rehabilitation hospital setting is uniquely vulnerable to such incidents given the constant transfer of patients who are often taking multiple medicines. Sound techniques in medication reconciliation are extremely beneficial in reducing mistakes, offering patients safer and higher quality care.

NAVIGATING COMPLEXITIES

Individuals who come to inpatient rehabilitation, whether from another facility or from home, are usually on some form of medication, which must be reconciled with any new prescriptions during their stay. Clinicians and pharmacists can then make more informed decisions about treatment and avoid inappropriate, unsafe or unnecessary changes to medications. Inpatient rehabilitation patients often arrive from an acute care hospital, where changes are frequently made to the individual's home prescriptions for any number of reasons. Switching institutions therefore leads to a greater probability of medication errors and makes reconciliation more challenging.

In a perfect world, new patients will have with them an accurate medication list, which is given to their nurse, pharmacist or other provider. This is entered into an electronic medical record (EMR), and physicians can review before writing orders and directing care. However, most rehabilitation patients have multiple clinical needs and thus see a variety of specialty care providers. Errors on the list, such as omissions or duplications,

are not uncommon, which also makes reconciliation increasingly complicated.

Most hospitals have formulary rules about how medications can and cannot be administered. What is approved for the outpatient setting doesn't necessarily coincide with what is approved for an inpatient stay; therefore, when an individual is admitted for inpatient rehabilitation, clinicians may have to perform a medication substitution to comply with these rules. This introduces yet another layer of complexity to the process. The clinician or pharmacist now must account for what was being taken before the person entered the referring facility; new medications given while at the hospital; substitutions made by the referring providers; medications needed during rehabilitation; and which regimen should be in place when discharged to home.

A TEAM EFFORT

At Kessler Institute for Rehabilitation, successful medication reconciliation is a multistep collaboration that requires vigilance from all parties at each stage. Clinicians must secure from the referring hospital the list of medications before the individual is even admitted. All patients have their medication list evaluated by at least one rehabilitation clinician and typically by one internal medicine physician within hours of arriving at Kessler. Further, a nurse liaison will notify the pharmacy of any uncommon medications the patient is taking. The pharmacist also will go into the EMR and double-check for inconsistencies (such as the same medication listed twice) or contraindications (for example, two pills that should not be taken together).

As EMRs become more ubiquitous and standardized, the sharing of information

across medical systems will hopefully become faster, safer and more seamless, which facilitates the reconciliation process. Primary care physicians can assist by encouraging patients to maintain and keep on their person an updated list of current pills. This should include information on doses and the reasons for taking the medications, which allows treating physicians to make better decisions about possible alternative prescriptions or changes in dosage.

The linchpin of effective medication reconciliation is thorough patient-clinician communication. By making sure such information is readily available at all times, we can significantly decrease the chances of medical errors and better overcome medication challenges presented by the rehabilitation setting.



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Better learning: how to keep pace with the medical literature

BY STEVEN KIRSHBLUM, M.D., AND MARITA DELMONICO

STAYING CURRENT with medical research must be a priority for every clinician and researcher. To be a good practitioner or scientist, one must be attuned to new diagnostic tools, treatment options and algorithms. And as patients, family members and caregivers become more aware of medicine through their own research, health care providers need to distinguish misinformation from unreliable sources.

Knowledge is key to providing quality care, and understanding where and how to learn the latest research findings and significant trends is the cornerstone to building a solid foundation of information.

IDENTIFYING SOURCES

Keeping pace with new literature can be facilitated both online and in person. For example, Docphin (docphin.com) is a free mobile application that aggregates content from journals and news sites while allowing readers to track authors and topics of interest. The website UpToDate (uptodate.com) is a clinical decision support venue that provides treatment recommendations based on the latest peer-reviewed studies. Blast

email services, as from Medscape, distribute e-newsletters about medical news and can be tailored by specialty.

In physical medicine and medical rehabilitation, staying on top of the latest science can be accomplished by seeking continuing medical education credits and updates from affiliated educational associations, including through the websites of the American Academy of Physical Medicine and Rehabilitation and the Association of Academic Physiatrists. Subspecialty organizations, such as the Academy of Spinal Cord Injury Professionals and the American Spinal Injury Association, often maintain reading lists or have electronic newsletters. *Rehab in Review* is a fee-based publication that recaps current literature important to the practice of physical medicine and medical rehabilitation. Journal clubs also are an underutilized tool for disseminating current information and facilitating discussion with colleagues.

QUALITY CONTROL

Critically reviewing an article is vital to assessing its findings. In evaluating study design, meta-analyses and systematic reviews can be considered the most robust, followed by double-blind, randomized controlled trials; cohort and case control studies; clinical practice guidelines; case series; and expert opinions. Clues as to the credibility of findings also lie in the study's sample size (the larger, the better); author credentials; clearly identified study purpose

and identification of design and methodology employed; the absence of bias; and the appropriate use of data that support the stated objective. Finally, one can judge the strength of a study's outcomes through conversations with respected colleagues or mentors in the field—particularly if the article suggests something at odds with current practice.

In today's technological age, the availability and scope of medical information can be overwhelming. While keeping up with everything would be impossible, it is important to avoid complacency and to continually add to your knowledge base.



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