

Rehabilitation

A publication from the Kessler Rehabilitation Corporation



The changing face of inpatient medical rehabilitation

► *Robert Krotenberg, M.D., and Joan P. Alverzo, C.R.R.N., M.S.N.*

Only 20 years ago, it was common for patients to remain in acute care hospitals for weeks or even months following serious illness, accidents or surgery. As a result, when patients were discharged to an inpatient acute rehabilitation facility, they were most often medically sound and stable. Such facilities could focus exclusively on providing rehabilitation care and developing effective treatment programs.

Today, however, patients are discharged from hospitals “sicker and quicker,” often needing continued medical attention. In response to this change, acute rehabilitation facilities have redefined the scope of

their services to address both medical and rehab needs of patients.

This development has important implications for patient care. Patients can now begin their rehabilitation sooner—even before they are fully medically stable, and even if they have ongoing medical management issues.

For example, many patients who undergo lower extremity joint replacement surgery are discharged from acute care hospitals after only two or three days, with a significant number experiencing multi-joint arthritis, dehydration, anemia, nutritional deficiency or skin breakdown. Many patients also have age-

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Focus on

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Maximum efficiency or distraction?

► *Bruce M. Gans, M.D.*

It's hard to believe, but I once was impatient with the delays that seemed built into health care. It could take hours for colleagues to return phone calls or days for letters to arrive with patient information. If only, I used to think, we could pick up the pace!

Now I am on the receiving end of a constant barrage of faxes, e-mails and cell phone calls—and I long for those delays that at least gave me time to think. With so much more information, we are implicitly being pressured to make decisions with less deliberation. Not surprisingly, we're also struggling with increasing stress and the fear that, in our haste to do it all, we're more likely to make mistakes.

We also now have a host of new business responsibilities. In addition to being clinicians, we hear we have to maximize revenue streams, boost practice efficiency and avoid liability.

How do we become efficient maximizers? By responding to incentives to speed up our hectic pace even faster and see more patients, schedule shorter appointments and delegate caregivers' concerns to others. Those of us with administrative, teaching and/or research duties now must shoehorn those activities into what increasingly feels like assembly-line medicine. But what do we gain from this faster pace? The "more volume" mantra too often makes us lose sight of why we went into medicine in the first place: to help patients. At the same time, the drumbeat of efficiency can overwhelm those aspects of our profession that bring us the most satisfaction.

Our drive to maximize business opportunities often distracts us from our core business. And what is that? In rehabilitation, our core business is to diagnose, prognose and treat our patients, determining the most appropriate therapies that will produce the highest level of function.

Our core business includes advocating for patients, both on a local level and more broadly, to bring about the kinds of changes that make life easier for individuals with disabilities.

And our core business includes taking care of ourselves as professionals. We cannot offer patients the highest quality care unless we advance our skills, discard outdated knowledge or practices and challenge ourselves to grow.

Perhaps the very nucleus of our core business is maintaining compassion for our patients and their families and caregivers. Without that personal connection—which paradoxically gets lost in the avalanche of electronic communication—we may lose the empathy that allows us to make a difference.

Each of us needs to examine how we spend our time and, if necessary, rearrange our priorities. We may find that taking care of our core business can lead to laudable consequences—such as more revenue, lower liability and, yes, even more efficient practices and facilities. The point is, how do we want to get there? Not by running faster on our professional treadmills, but by maintaining our commitment to our patients, our communities and our profession.

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—Bruce M. Gans, M.D., *Editor-in-Chief*

Wheelchair technology keeps rolling forward

► Gabriella G. Stiefbold, O.T.R./L., A.T.P., and Sean McCarthy, O.T.R./L.

When a wheelchair user's special chair allowed her to rise to an upright position at the appropriate times in a church service not long ago, fellow parishioners were startled. But it was a miracle only metaphorically. It showed how advancing technology is broadening the options for wheelchair users. Today there are a host of new ways to meet an unchanged goal: finding the wheelchair that best meets the individual's needs.

Chair power

Obviously, reliability is the primary consideration for the wheelchair user. If the person requires help propelling the chair, for instance, a fully powered chair can be designed in any number of ways. The user may be able to handle a joystick or a sip-and-puff system, in which he or she exhales or inhales into a device to move and direct the chair. Chairs can also be designed with sensing devices that direct them when and where to move, based on a simple head or finger motion.

One exciting advance, already approved by the FDA, is an anti-tip standing chair, designed to rise up on two wheels and maintain balance while the person moves about in a standing position. This chair lets the user climb stairs without assistance and travel over grass, gravel, sand and uneven ground.

Comfort is a key concern of

wheelchair users and their clinicians. No longer are users forced to remain in the same sitting position over long periods. Today, there are chairs that allow the user to recline, elevate the legs and raise or lower the seat—all



New technology in wheelchair design enables seated individuals to elevate to a standing position, helping them to perform daily tasks with greater ease and independence.

with push-button ease. Besides aiding comfort, these chairs help avoid health problems associated with prolonged sitting. Some features combine functionality and comfort. Modular chairs now available offer high-tech accommodations such as mounts for computers.

The selection of the right chair should be a team effort by the prospective user and a group of the relevant clinical professionals. It should begin with assessing the person's functional status and mobility needs. Individuals whose chairs

enable them to stand, for example, have to be able to adjust the belts these chairs generally employ to hold them safely upright. For those planning heavy outdoor use of their chairs, the team may choose a model designed to travel over tough terrain and up and down curbs.

Adding 'wheels'

Another exciting innovation is a robotic arm that can actually load a wheelchair into the trunk of an automobile. In general, the person who can propel a chair to some degree but needs assistance with transfers will likely require a van with a ramp or lift. However, if the user can transfer alone, he or she may be able to employ a manual chair and a car that is customized with this new robotic arm.

Selecting and fitting the most appropriate wheelchair for any person is a complex process. But dramatic advances in

wheelchair technology in the past few years offer new opportunities for individuals to achieve optimum mobility and independence.

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The visible physician

What does it mean to be named one of your profession's 'best'? One honoree explains.

Year in and year out, Kessler's Kathleen Francis, M.D., maintains the same hat size. That's no mean feat when you consider that annually since 1999 she has been included in a widely publicized listing of the nation's "best doctors" gathered by Castle Connolly Medical Ltd. The list, a version of which appears in *New York* magazine, marks her as one of 1,300 honored physicians among the 50,000 practicing in the New York area.

Not bad for a latecomer to medicine. It wasn't until she was 35 years old that Dr. Francis decided to go to med school, having first reared three children. She then attended the University of Medicine and Dentistry of New Jersey (UMDNJ) and completed residencies at St. Barnabas Medical Center, UMDNJ and Kessler Institute of Rehabilitation.

Since then, Dr. Francis has made up for lost time. Her interest in lymphedema, which comprises 60 percent of her practice, has earned her a seat on the medical advisory committee for the National Lymphedema Network. A board-certified member of the American Academy of Physical Medicine and Rehabilitation, she focuses the balance of her practice on neurological rehabilitation. She is also a diplomate of the American Board of Electrodiagnostics Medicine.

Focus on Rehabilitation spoke with Dr. Francis about what it's like to be designated one of the "best." Readers may reach her by e-mail at kfrancis@kessler-rehab.com.

FOCUS: How are physicians selected for the list?

FRANCIS: First you have to be nominated by a current "best doctor."

Then there's a confidential peer-evaluation process, as well as review by an independent medical research and publishing company.

FOCUS: Has being named as a "best doctor" boosted your referrals?

FRANCIS: Not that I'm aware of. No one has come to me citing the list as the reason they were referred, but perhaps it has played a role in some physicians' thinking. In gen-



One of the top docs: Kathleen Francis, M.D. (left).

eral, I don't think physicians refer solely because of a designation like this without personal knowledge of a doctor. On the other hand, sometimes our knowledge of one another is based on social relationships and word-of-mouth reputation, and a list like this may add a useful element that is more objective.

FOCUS: What is the value of a "best doctor" list?

FRANCIS: There are lots of opportunities to be recognized in medicine for academic achievement—publishing papers, writing book chapters, speaking at national conferences. This recognition is about our clinical performance and bedside manner as judged by our fellow physicians.

FOCUS: How do you feel about the criteria used to develop "best" lists?

FRANCIS: Because other physicians

have to nominate you, vetting is based on personal knowledge. Physicians can separate "This is a nice guy" from "This is an excellent physician." When you vote for a nominee, it's as if other doctors are calling you and asking, "Would you send your family members to this person?" It's a vote of confidence by other physicians. And you don't find out you were nominated until the final selections are announced at the end. Voting is confidential—otherwise it could be nasty!

My only beef is that there are a lot of top physicians who are not on the list, but deserve to be. If you're not on the list, it doesn't mean you aren't as good a physician as those who are. So I make sure I nominate the ones who I believe should be listed.

FOCUS: What do you consider in making nominations?

FRANCIS: I nominate other doctors based on my observation of them during our training together or because I feel

their care of patients I've referred to them has been excellent. I also consider little things like whether they call me to discuss issues about patients, as well as feedback I get from patients about the care they received. In some cases, I serve on a committee or clinical group and can listen to them discuss cases. Both here at Kessler and in my association with a local breast cancer group, for example, I've met physicians who have impressed me with their clinical acumen, devotion to patient care and knowledge of the literature.

FOCUS: How do patients use the list?

FRANCIS: Some check to see if their physicians are listed. If so, they feel their choice of doctor has been validated. Others check the lists when picking a new doctor. It's certainly better than the Yellow Pages!

The future of rehabilitation engineering

► *W. Thomas Edwards, Ph.D.*

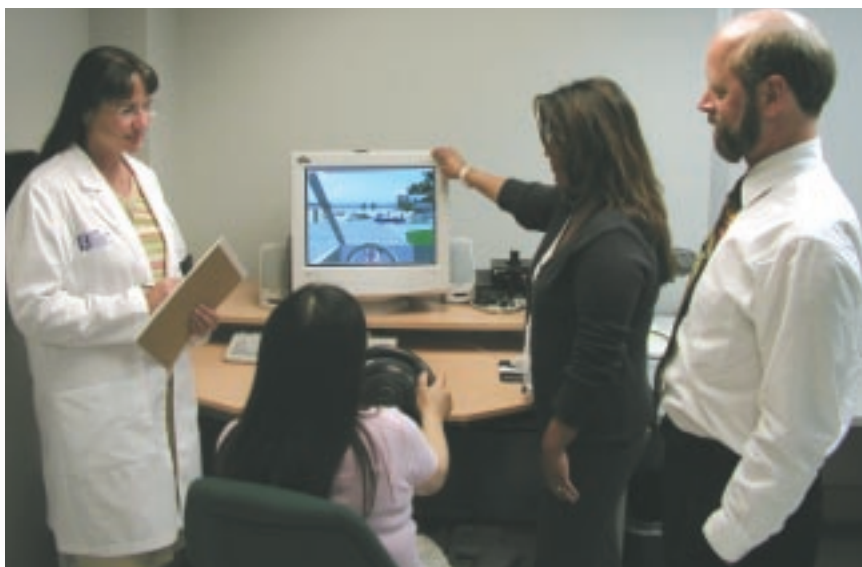
From vests that tell stroke patients when they are about to lose their balance to “exoskeletons” that show an individual how to walk, exciting breakthroughs can be expected from rehabilitation engineering in the next five to ten years.

Wonders to come

The use of science and engineering to identify and solve problems faced by people with disabilities holds great promise for the future. For instance, rehabilitation engineers will soon be able to design devices for correcting balance disorders, which affect 70 percent of stroke patients. One can envision highly compact devices containing small gyroscopes built into an article of clothing to measure the minute rotations that occur as the user walks. Such a device would be silent when the user is upright and steady, then vibrate or buzz when the individual begins to lose balance.

Besides these “real-world” applications, the device could work with an interactive virtual reality system or computer simulation to combine therapy with recreation. One example is an interactive virtual skiing system that helps train the user to shift weight correctly. If one leg is weaker, as the user regains strength and balance the demands on that leg could be gradually increased to improve the rate of recovery.

The use of virtual reality, in fact, has almost limitless applications for rehabilitation engineering. Computer driving simulators are being used to help evaluate and retrain individuals to drive in an environment that is safe and practical. Refinements of virtual office and virtual home simulations can provide an efficient and effective way to prepare reha-



Members of the rehabilitation engineering team demonstrate a driving simulator.

bilitation patients for discharge.

The efforts of rehabilitation engineers have been aided by two technological trends: increased computer capability and nanotechnology, the study of the infinitesimal, from molecules to tiny computers. Together, these trends have enabled the design of devices that are more compact, require less power and are thus more available for rehabilitation uses.

Mobility—and data too

Technology such as tiny implanted devices can be designed to help control movements in an artificial limb. Other devices can precisely measure muscle activity in patients affected by spasticity. This information can then be used to apply Botox-type or biofeedback interventions, which can reduce spasticity in a highly specific manner. Using bioinstrumentation that focuses on measuring and analyzing physical functions with computer software, engineers can devise a wheelchair that not only provides

mobility, but also monitors medical conditions such as hypertension.

The development of robotics also benefits from the increase in computer power. One application under study uses a frame or exoskeleton that a patient wears on weakened limbs. The device displays information for the user on whether or not the muscles are being used efficiently during walking. This use of feedback in therapy can greatly improve a patient’s timing and strength during recovery.

Miniature gyroscopes and sensors, powerful computers and robotics offer a host of possibilities. With them, rehab engineers envision a device that restores the ability to stand and even walk for those who have lost these functions, bringing new hope for people with disabilities.

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A new ‘big tent’ coalition deserves our support

► Bruce M. Gans, M.D.

One of the biggest frustrations we face as clinicians is making sure our patients with disabilities get the technology they need to achieve maximum function.

More than any other specialty, we prescribe sophisticated technologies to improve mobility, enhance function and advance patients’ ability to communicate. From power wheelchairs and handicap-accessible vans to voice-activated environmental controls for the home and office—for our patients, these devices can make the difference between having full and independent lives and being unnecessarily limited by their disabilities.

Yet time and time again, we run up against a lack of available devices that have the right specifications. Or products have inadequate distribution or service networks, or they are one-of-a-kind inventions that fail and disappear. The number of patients who have severe disabilities is too small to sustain mass-market commercialization of many assistive devices, including design, manufacturing and support. Also, Medicare and other insurers resist covering the kind of equipment our patients need—a fact that further limits their commercial possibilities.

Now a new coalition is trying to break that financial and entrepreneurial logjam. This spring, the Independence Through Enhancement of Medicare and Medicaid (ITEM) coalition was launched to boost awareness of—and coverage for—the devices and technologies disabled people need. The coalition’s 65-plus member organizations range from consumer groups and professional organizations to manufacturers and therapists. This

“big tent” of broad-based advocacy is unprecedented in the area of assistive devices—and promises to bring the strength of numbers to bear on previously intractable problems.

Coalition members have already started giving input on proposed Medicare and Medicaid changes, insisting that other services not be paid for by taking funds away from durable medical equipment benefits.

A new definition of “medical necessity” could remove a barrier to technologies that can give our patients more independence and better health outcomes.

ITEM has also begun giving testimony on the types of technical research people with disabilities need.

But the coalition has an even more ambitious agenda. It seeks to raise awareness among the public and policymakers about the quality-of-life benefits available to disabled people when they have access to professional, supported technologies.

ITEM intends to lobby to expand “medical necessity” definitions to encompass functional enhancement as well as treatment. For our patients, that new definition would remove a major barrier to technologies that improve their independence and their health outcomes.

The coalition plans to press for the kind of funding and regulatory support manufacturers need to be able to bring innovations to market. Better funding and streamlined regulations would help create more viable industries. That environment might even allow businesses to develop mass-market products—that use voice-recognition technology, for instance, or utensils designed

for a broader market of aging hands—that could be more easily modified to meet the demands of people with significant disabilities.

ITEM intends to use its considerable political muscle to effect meaningful, positive changes in coverage policies, first within Medicare and Medicaid and then among other federal programs and private insurers. Members are already getting out the word that without expanded coverage, businesses with innovations to offer will only continue to flounder—and patients will languish without the technical means to lead more productive lives.

While consumer groups are taking the lead in ITEM, the American Academy of Physical Medicine and Rehabilitation is one of the coalition’s founding members, providing an example we as individual practitioners should follow.

Our specialty shares a great deal of common ground with this new advocacy group. And physiatrists have a key role to play. We can join coalition members in grassroots efforts to raise awareness and to increase funding and coverage. We can counsel consumers and businesses on how best to specify, test and utilize devices.

And we can share our hard-earned expertise, letting coalition members know what has and has not worked for our patients. In return, we will benefit from ITEM’s commitment to giving the technical needs of our patients the greatest possible visibility.

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related morbidities such as diabetes or cardiac conditions, all of which need to be addressed.

Other types of rehabilitation patients also require a high level of daily medical care. Spinal cord injury patients may be ventilator-dependent and at risk for respiratory failure, skin breakdown and bowel or bladder incontinence. Traumatic brain injury patients often require IV support, seizure control or cardiac monitoring. Stroke patients commonly suffer from diabetes, swallowing or feeding difficulties, hypertension or cardiac conditions.

What patients need

While acute rehabilitation facilities are able to treat more and more patients with serious medical needs, many medically stable patients who require inpatient rehabilitation are being channeled to nursing homes by insurance companies. For example, given insurance conditions, the post-discharge rehabilitation options for a knee replacement patient may include entering a nursing home, being admitted to an acute rehabilitation facility or returning home and receiving outpatient rehabilitation treatment. Each of these settings offers specific resources which, depending on the patient's capabilities and health status, may be appropriate.

In general, patients admitted to an acute rehabilitation facility are expected to be sufficiently stable to participate in an intensive rehabilitation program, but may also require 24-hour nursing care and medical oversight by a physician.

To determine whether patients qualify for admission and could benefit from inpatient acute rehabilitation, facilities may screen patients for specific diagnoses. Stroke

screening, for example, will determine if the patient is ventilator-dependent or receiving dialysis or radiation therapy and if he or she can follow single-stage commands, among other questions. For the patient to be admitted, both medical care and rehabilitation treat-



The right choice for a patient's rehabilitation will depend on his or her individual needs.

ment must be within the capabilities of the facility.

A team approach

Patients who do not require active medical intervention may still be excellent candidates for admission to rehabilitation facilities rather than nursing homes. These facilities offer treatment by a highly integrated, multidisciplinary rehabilitation team, including physiatrists; speech, occupational and physical therapists; psychologists; orthotics specialists and a variety of others.

This team approach assures patients continuity of care and more comprehensive treatment. Inpatient rehabilitation is also goal-oriented,

tailored to each patient's needs and focused on returning people to the community as soon as possible.

Advantages of acute rehabs

Although not all patients are appropriate candidates for an acute rehabilitation facility, those who are may benefit significantly:

- Studies indicate that patient outcomes differ significantly among the various settings. Patients who are treated in acute rehabilitation have been shown on average to gain more function, have shorter hospital stays, recover more quickly and be more likely to return to the community than patients in other kinds of facilities.
- Acute rehabilitation facilities provide patients with at least three hours of therapy per day, whereas subacute care facilities, nursing homes or traditional hospitals generally offer less than half that amount.
- Medicare requires that those admitted to rehabilitation facilities be in need of at least two types of rehabilitation therapy, be it speech, occupational or physical therapy.

Patients who need rehabilitation services should be evaluated carefully to determine the setting that can provide optimal recovery. And the professionals who make those determinations should keep in mind the way the face of inpatient medical rehabilitation has changed in the last few years.

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Post-stroke patients and rehabilitation

► Daniel C. Fechtner, M.D. and Uri Adler, M.D.

Studies show that outcomes for post-stroke patients vary significantly based on where they receive rehabilitation care. Patients with moderate to severe functional deficits are generally best served in an acute rehabilitation facility, which provides more therapy and medical attention than they would receive in a subacute facility or nursing home.

Care plans for post-stroke patients are devised to fit their particular needs and are modified as these needs change. If they can tolerate only light therapy, for example, regimens may begin with positioning, transferring and range-of-motion exercises, then advance to more vigorous therapy.

Patients who require monitoring in an acute care hospital, such as those with cardiac ischemia, uncontrolled seizures, uncontrolled hypertension or extreme blood sugar levels, are not sufficiently stable to be admitted to acute rehabilitation facilities. However, because these facilities provide round-the-clock nursing as well as daily physician care, patients with complex but stable medical conditions can benefit greatly from inpatient acute rehabilitation. In these facilities, multidisciplinary teams led by a physiatrist provide care for complex conditions that include incontinence, swallowing problems, depression, nutritional

deficiencies, hypertension, diabetes, deep-vein thrombosis, arousal difficulties, pain, sexual dysfunction, spasticity and visual problems.

A common misconception about



The acute rehab setting offers both rehabilitation and medical attention.

post-stroke care is that older patients should be admitted to nursing homes or subacute facilities rather than to acute rehabilitation. Inpatient therapy is based on function, however, and there is no age limit for benefiting from a multidisciplinary therapy program in an acute rehabilitation hospital. Also, many elderly patients have numer-

ous comorbidities that require close medical supervision, which is provided more extensively in acute rehabilitation than in other options.

Acute rehabilitation facilities also can help meet patient needs far beyond the early post-acute phase, managing late complications of stroke and providing services such as driver training. They also can train family members in transfer techniques, bathing, dressing, catheter use, injection medicine use and fingersticks, and help with safety and mobility issues such as the choice of ambulation aids, wheelchairs, commodes, ramps, rails, reachers, transfer boards and other equipment.

Finally, because previous stroke is the largest risk factor for a future stroke, prevention is a critical aspect of both inpatient and outpatient care. The rehabilitation team will determine the need for secondary stroke prophylaxis medical treatment and lifestyle changes. Meeting these often extensive and complex needs is crucial and can mean the difference between a poor patient outcome and a positive one.

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