

# Rehabilitation

SPRING 2015

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## Guarding against infection in the rehabilitation setting



BY CRAIG EICHNER, M.D.,  
AND VALERIE VERMIGLIO-KOHN, R.N., MSN, M.S.

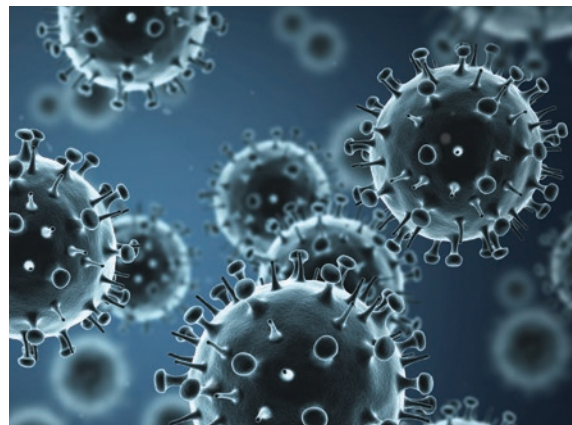
THE ANNUAL DIRECT COST of treating hospital-associated infections in the United States has been estimated to range from \$28 billion to \$45 billion, according to the Centers for Disease Control and Prevention<sup>1</sup>.

Patients in rehabilitation hospitals are at an increased risk for these types of infections because of the high prevalence of indwelling catheters, percutaneous feeding tubes, chronic wounds and surgical interventions. Not only are such bacteria a potential threat to patient mortality and morbidity, but they also have been associated with lengthening hospital stays, utilizing greater resources and raising treatment costs.

To help reduce transmission rates and prevent outbreaks, rehabilitation health care providers need both an awareness of standard infection control practices and an understanding of the unique risks posed by this particular environment.

### The Same ... but Different

Rehabilitation populations are highly vulnerable to infections associated with the urinary tract, central line catheters, skin, and respiratory tract, especially in patients on ventilators. Contributing factors are age, degree of debilitation and underlying nutritional deficits, but lack of mobility is the greatest threat. Numerous studies on



*Kessler strongly encourages all staff members to be vaccinated to prevent the spread of the influenza virus.*

healthy volunteers have demonstrated the deleterious effects of immobility, including the colonization of bacteria in as little as 48 hours of bed rest. This in turn raises susceptibility to infection.

To some extent, current concerns about controlling and preventing infection during rehabilitation mirror those in general medical settings. For example, rehabilitation clinicians must be extremely vigilant about the acquisition and outbreak of organisms that are resistant to antibiotics. Generally, patients are referred to Kessler Institute for Rehabilitation from acute medical hospitals; this increases the risk of resistant organism infections that were acquired at the previous facility. These bacteria may require aggressive treatment, such as broader-spectrum antibiotics, *(continued on page 7)*

FOCUS ON

# Rehabilitation

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## An ounce of prevention



THE 114TH UNITED STATES CONGRESS has been in session now for a few months. The legislature welcomed 13 new senators and 58 new House representatives, not to mention dozens of novice staffers. Returning members and aides may also have new committee roles, areas of responsibility or priorities.

All of which means considerable work is required to educate these individuals and forge or reinforce relationships with them and their teams.

Our need to refresh our outreach every two years might feel Sisyphean in its scope. Yet it is more than worth the time and effort. These elected and appointed individuals determine the policies that affect our institutions and our patients—and our reimbursement. With health care reform in the forefront and the urgency to reduce costs, more calls for change in our industry are inevitable.

Thus, it is critical that we reach out to these representatives and their staffs to familiarize and educate them about the field, the important work we do, and the need to put the patient first when considering legislation. Doing this engages supporters who will understand and empathize with our issues when we need their help.

Starting the process is as simple as visiting representatives' websites. Many sites will highlight their positions on our issues and provide contact information and dates when members will be in their home district.

Constituent meetings, either directly with the elected official or the staff member who handles health care issues, are an important next step. Inform the aide, and the aide will educate the elected representative. Even better than a visit to the legislator's office is inviting members and staffs to your facility. Giving them a tour and illustrating the impact you make on the lives of patients and their families will subtly remind your representative that your clinicians and patients are voters.

One of the first issues you may need to address is the recent recommendation by the Medicare Payment Advisory Commission (MedPAC) about site-neutral payment. In January the commission, which advises Congress, advocated that 22 MS-DRGs be considered for site-neutral payment between inpatient rehabilitation hospitals (IRHs) and skilled nursing facilities (SNF). This means IRHs would be paid essentially the same as nursing homes for a patient's treatment.

Yet, as we know from a number of published studies, including a seminal study conducted last year by Dobson I DaVanzo Health Care Consulting, patients treated in an IRH have better long-term clinical outcomes than those treated in SNFs, spending half as much time in their initial rehabilitation setting and living an average of two months longer in the community.<sup>1</sup>

This is exactly the kind of information we need to convey to the new Congress.

**Bruce M. Gans, M.D.**  
Chief Medical Officer

<sup>1</sup> DaVanzo JE, El-Gamil A, Li JW, et al. Assessment of Patient Outcomes of Rehabilitative Care Provided in Inpatient Rehabilitation Facilities and After Discharge. Prepared for the ARA Research Institute. 2014.

# Easing pain responsibly: strategies for prescribing opioid analgesics in rehabilitation

> BY JOSEPH P. VALENZA, M.D.

UNDERTREATED PAIN is a widespread and significant public health concern. Ineffectively treated pain imposes a burden to patients' daily independence, physical and social capacities, mental health and overall quality of life. The advent of opioid medications has helped alleviate these problems, allowing millions of patients to live lives with less pain and improved functioning.

However, as the prescription of opioid medications has drastically increased over the past two decades, so too have the negative outcomes associated with it, including abuse, addiction and death. As a result, the prescribing of opioids and other potentially dangerous controlled substances has become a high-profile problem.

As clinicians balance providing patients with better quality of life, they also must balance the need to safeguard against negative consequences, underscoring the importance of physician awareness and education.

## Profile Your Patient

To reduce the risks of prescribing opioids and dangerous controlled substances, doctors must properly vet patients to determine who might be more vulnerable to abuse, diversion and addiction. Kessler Institute for Rehabilitation has a comprehensive pain program, and this assessment begins even before a patient's initial visit. Nurses conduct screenings over the telephone, reviewing medical and family history and current medications. A pain psychologist helps further determine individual risk, considering factors that could increase the likelihood of misuse, such as a mental disorder or history of substance misuse. Centers that are not fortunate enough to have a pain psychologist can use other measures—such as the Screener and

Opioid Assessment for Patients with Pain (SOAPP) or the CAGE questionnaire that screens for alcoholism.

Following this review, each patient sees a physiatrist with specialized training in pain medicine who tailors an individual treatment plan in which it is determined whether the individual's pain disorder requires surgery, interventional techniques, physical therapy, psychological counseling or pharmacological agents including opioids, or a combination of the above. If opioids are deemed necessary, a urine screen for toxicology is obtained to rule out the presence of illicit substances as well as to confirm prescribed medications. New Jersey, like most states, sponsors a monitoring program that indicates whether a patient has sought similar medications from multiple prescribers—a telltale sign of "doctor shopping." Kessler clinicians review this profile before prescribing any potentially dangerous controlled substance. They also follow these outpatients monthly to confirm improvements in activities of daily living and mobility; rule out abuse and diversion; ensure the patient is receiving appropriate analgesia; and address adverse reactions. Kessler also requires patients to sign a pharmacological agreement to inform them of risks and benefits of medications and how to take them properly.

## Think Ahead

Although most patients adhere to the pharmacological agreement, the reality is that clinicians will encounter individuals

who misuse these drugs. To handle these situations effectively, physicians must have an "exit strategy," which could include sending the patient to a detox facility or tapering medications.

The United States Food and Drug Administration (FDA) has mandated that pharmaceutical companies do their part as well by developing long-acting medications that have abuse-deterrent properties. For example, reformulations of Oxycontin and Hysingla now make dissolving, breaking or injecting the medicine far more challenging. Embeda, an extended-release version of morphine, includes abuse-deterrent labeling regarding its inclusion of sequestered naltrexone hydrochloride, an opioid antagonist. When the pill is taken whole, the naltrexone is suppressed, but when it is crushed—to facilitate intranasal snorting, for example—the opioid effects are blocked.

## Get the Facts

Opioids helped revolutionize analgesic approaches to patient care and are now a mainstay of treatment for moderate to severe pain. With training, physicians will be armed with the necessary tools that can harvest the benefits of dangerous controlled substances while mitigating their associated risks. To ensure continued access to these beneficial medications, it is critical that clinicians remain vigilant and follow strategies to reduce the negative aspects that come with prescribing these powerful controlled substances.



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# Striking the right balance: body temperature dysregulation and spinal cord injuries

> Q & A WITH BARBARA BENEVENTO, M.D.

TEMPERATURE DYSREGULATION is a well-known consequence of spinal cord injury (SCI) that, if unaddressed, can potentially impact patient mortality, morbidity and quality of life. Unlike temperature changes that occur as a result of infection or other medical factors, temperature instability and the body's response to non-environmental events are far more common and can

potentially be regulated with appropriate clinical guidance.

The experience of autonomic dysfunction that accompanies SCI presents unique challenges to thermoregulation—both for clinicians and for patients. *Focus on Rehabilitation* recently spoke with Barbara Benevento, M.D., the director of Ventilator Programs at Kessler

Institute for Rehabilitation, about temperature dysregulation and how this phenomenon affects patients and their need to adapt to temperature changes in the environment.

**Focus on Rehabilitation:** What temperature irregularities do individuals with SCI experience in comparison with uninjured persons? Is this mainly an issue of hyperthermia or hypothermia?

## HELPING PATIENTS BEAT THE HEAT

Hot weather days are particularly problematic for individuals with spinal cord injuries, whose inability to dissipate heat through sweating and vasodilation can easily lead to mild overheating and, if unaddressed, environmentally induced hyperthermia. Symptoms can include skin that feels hot and dry to the touch, flushing of the skin, nausea, confusion or other cognitive disturbance, low blood pressure, and feeling weak or dizzy.

The following guidelines are shared with patients at Kessler Institute for Rehabilitation to help ensure individuals and their caregivers are aware of preventive behaviors to reduce the likelihood of hyperthermia.

- Patients are advised to plan ahead and consider how warm weather may affect choice of clothing or need for extra hydration. By the time a person already starts to feel overly warm, it's too late.
- Spray bottles can be useful for misting the skin with water.
- Loose-fitting, cotton-based clothing tends to be more breathable and is appropriate for higher temperatures.
- Most people know to drink water when the weather is hot, but it also is useful to keep water available for cooling the skin. Water should be applied to the face, neck and shoulders. A moistened bandana can be worn.
- Individuals with catheters should be aware that drinking extra fluids will require more frequent catheterization.
- If moving indoors to an air-conditioned space is not possible, consider portable fans.



### Barbara Benevento, MD:

Depending on the individual, it could be either. Poikilothermia is the term we use to describe the condition when patients are unable to properly regulate their temperature. Hypothermic patients can't regulate temperatures in a cool environment. Conversely, hyperthermic patients are unable to do so in a warm environment.

The hypothalamus area of the brain controls core temperature. An SCI affects a person's temperature regulation because signals from the sympathetic and parasympathetic nervous system pathways from the hypothalamus are disrupted. This disturbance damages the autonomic control of dilation and constriction of blood vessels. Individuals with spinal cord lesions at the T6 level and above are more affected. Patients cannot as effectively increase core temperature by vasoconstriction or shivering; similarly, they also cannot decrease core temperature by vasodilation and sweating because of the level of their injury. One example of this phenomenon occurs when a patient with an SCI comes out of a hot shower: These individuals often report feeling extremely cold and will shiver for an extended time due to their body's inability to raise its temperature as quickly as it would for a person without an SCI.



**Focus:** Is thermoregulation dysfunction present in all patients with SCI or is this limited to certain sub-groups?

**Benevento:** Thermoregulation dysfunction is common among the SCI population; however, the degree to which a patient's sympathetic nervous system is affected depends on the nature and location of the injury. For example, the higher the location of a spinal cord injury (lesion), the greater the risk of experiencing difficulties with thermoregulation. Patients with certain comorbidities, such as stroke, diabetes or thyroid disease, may be predisposed to poor circulation, and as a consequence may be even more susceptible to thermoregulation problems.

There are certain situations in which all SCI patients, regardless of lesion location, should be aware of an increased risk of changes in body temperature. Climatic conditions including temperature, humidity, wind, rain, snow and pollution should be considered prior to a patient's prolonged exposure to these events. The combination of high temperature and high humidity increases risk of hyperthermia, particularly in relationship to increased activity or exercise. The combination of cold weather and wind increases the likelihood of hypothermia. These conditions can affect able-bodied individuals, but persons with SCI are most vulnerable.

**Focus:** How serious a problem is this? What are the primary consequences of being unable to regulate one's body temperature?

**Benevento:** In addition to causing extreme discomfort for the individual, hyperthermia and hypothermia each carry specific side effects if untreated. Hyperthermia can lead to neurological impairments such as confusion and speech difficulties, and if persistent and uncontrolled, may be fatal due to reduced cardiac output and blood flow to the brain. Fever is often the first sign of infection, and as a result, patients with a higher core temperature typically need to undergo a work-up to determine whether something more serious—like pneumonia, urinary infection or sepsis—is present. Similarly, hypothermia can impair neurological functioning and also can cause respiratory difficulties and cardiac arrhythmias, which, if left untreated, may be fatal.

**Focus:** How do clinicians determine the meaningfulness of temperature in clinical conditions?

**Benevento:** This is most relevant to hyperthermia. As noted previously, ruling out infection is of primary importance because higher temperatures are often indicative of an illness. However, with this population, you cannot assume that a high temperature means the patient has a medical issue. Misdiagnosis can result in a patient undergoing unnecessary treatment. You could end up treating something that doesn't really need it. For these patients, once you rule out an infection, you are basically looking at someone with a fever but who is not ill. At that point, you need to look at the environment. Is it too warm? Are they wrapped up in too many blankets? Many times,

temperature dysregulation we see in patients with SCI is an environmentally induced event.

**Focus:** How do clinicians help patients manage their body temperatures to prevent extremes on either end—that is, becoming too hot or too cold?

**Benevento:** In SCI patients who are hypothermic, one way to increase their body heat is by shivering. So patient education is key in teaching individuals how to prevent overheating or overcooling in the first place (see "Helping Patients Beat the Heat").

During the acute phase of injury, while individuals are in an inpatient rehabilitation program, we can manage their environment by regulating the room temperature and use of blankets. Once discharged, patients in their home setting must become more mindful of keeping their indoor temperatures stable and avoiding drastic changes. In a cold environment in which the temperature can't be controlled, such as outdoors, we recommend wearing extra layers of clothing and hats, and drinking warm fluids to prevent heat loss. Conversely, in warmer weather, patients are encouraged to dress in light layers that can be removed easily and to stay hydrated with water. And in both cases, patients should probably avoid sitting outside for extended periods when the weather is excessively warm or cool. Individuals who participate in outdoor exercise should be careful to prevent hyperthermia by maintaining hydration, limiting the duration and intensity of activities, and ensuring appropriate sports attire is worn, such as that made from moisture-wicking materials designed to keep the wearer cooler.

These recommendations allow patients with SCI to live a more productive and active life without compromising their health and safety.



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# Developing tomorrow's leaders today

> BY BRUCE M. GANS, M.D.



IS YOUR ORGANIZATION or practice prepared to deal with the loss of its top leaders or managers, whether they leave by choice or by circumstances? Too often employers forget one of the most important components to ensuring strong performance for the long term: succession planning.

Succession planning requires first defining the key skills and personal traits needed for top positions, then identifying current employees or volunteers who have the potential to fill those roles. Also consider future needs when hiring new workers. If internal contenders are identified for advancement, the next step is to determine what gaps in the potential successor's experience or skills need to be bridged, and map out a plan to fill them.

## Leader versus Manager

At the top of the list of must-haves should be finding people who understand and demonstrate the difference between managing and leading.

A leader is someone who can identify and articulate a vision, direction and purpose, and compel people to join him or her in achieving the mission. A leader looks forward, whereas managers focus on where they are and where they've

been, wielding the resources to help the leader realize the vision.

Leadership cannot be repressed in some team members and cannot be extracted from others. There is, however, a middle group of individuals who can be cultivated to become leaders. Organizations typically find that about a third of its top people have that potential. These are the employees, together with previously identified leaders, who need to be nurtured and cultivated to become potential future top dogs.

## Becoming a Leader

Leaders can be developed by assigning promising employees to special projects, putting them at the head of work teams, and pairing them with mentors who can develop their skills and talents. The mentor may very well be the person in the position for which the staff member is being groomed.

The Society for Human Resource Management also recommends allowing potential leaders to shadow their mentor so they can observe problem solving and interactions, and include them in strategic planning and budgeting activities. SHRM offers tools for succession planning on its website, [shrm.org](http://shrm.org).

Working with potential future

leaders to map a career path for them so they can reach their potential and assume critical roles is an important approach. This entire process is called "talent management."

## Professional Training

Several professional organizations offer leadership training to help talented physiatrists develop and hone their skills. These include the Association of Academic Physiatrists' Program for Academic Leadership (PAL) and the American Academy of Physical Medicine and Rehabilitation's Academy Leadership Program.

The former is a three-year program designed to provide a basic framework and skill set to promising physiatric faculty to enhance leadership abilities within departments, medical schools and the field at large. Candidates attend the PAL course during each of three consecutive AAP annual meetings and learn about department administration, teaching and education, and research. Applications for PAL are due in September each year.

The latter is designed to identify and develop early-career physiatrists to prepare them to engage in AAPMR volunteerism and to assume future leadership positions. Participants complete a two-year curriculum that introduces them to association leadership, strategic planning, media skills, AAPMR governance, products and services, and volunteer leadership. The courses combine facilitated sessions, reading assignments, peer discussion and mentorship.

In addition, an educational session on succession planning is planned for the American Medical Rehabilitation Providers Association's educational conference in October 2015 in Nashville.

Wise leaders develop their own successors.

## Guarding against infection in the rehabilitation setting

(continued from page 1)

including second-line agents that typically are more expensive. Patients with prolonged hospital stays are vulnerable to the development of pathogens both before and after transfer to inpatient rehabilitation.

Rehabilitation's multiple treatment environments lead to numerous opportunities for pathogens to spread. Patients receive care in various settings throughout the Kessler campuses—therapy gyms, nursing units, clinical exam rooms and more. Therefore, it is important to protect against infection in all treatment areas.

### Proactive and Reactive

Standard infection control techniques are appropriate in both rehabilitation and general medical environments. These include employing contact precautions, properly using barriers like gowns and gloves, and containing wound secretions and body fluids. Ongoing performance of surveillance cultures also helps identify antibiotic-resistant microorganisms. Hand hygiene—through washing or use of alcohol-based lotions, or both—is one of the most effective strategies to prevent infection. Kessler's program is based on the World Health Organization's Five Moments for Hand Hygiene, which explicitly defines key opportunities for hand washing (e.g., before and after patient contact, after body fluid exposure, before an aseptic task and after contact with the patient surroundings).

Perhaps the greatest challenge for infection prevention in rehabilitation care is communication among the numerous staff members who have patient contact—not just those providing

treatment. Emails are distributed when an individual's laboratory results indicate presence of a potentially infectious pathogen. Patient identification tags also help alert health care providers but are inconspicuous to protect the person's privacy. Highly visible signage is placed throughout patients' rooms so that anyone who enters—from physicians and nurses to families and other patients to housekeeping staff—know to observe proper infection control practices. And because multiple clinicians and patients rotate through the same treatment areas, if a certain case requires precautions, individuals are notified ahead of time so that preventive measures can be taken, such as extra disinfection and sterilization of equipment.

### Spreading the Word

Through extensive communication with clinicians and staff as well as patients and their families, Kessler is creating a culture wherein the control and prevention of infections is everyone's concern. For instance, an educational guide is distributed across all campuses with information about prevention measures. Understandably, well-intentioned family members are eager to visit their loved ones but often do not realize how great a threat they pose by not washing their hands properly; failing to adhere to gown and glove regulations; or visiting while having symptoms of a cold or influenza. These missteps not only increase the chances of infection for their loved one but also for other patients, visitors, clinicians and non-treating staff.

To decrease the potential exposure to influenza, Kessler strongly recommends the flu vaccine for all staff—not just the treating clinicians—and patients are educated on the importance of receiving the vaccine themselves. While patients and families cannot be forced to acquire the vaccine, such teaching



Kessler is creating a culture in which controlling and preventing infections is everyone's concern.

moments can be powerful in motivating behavioral change.

As a result of our efforts, in particular the emphasis on communication, rates of infection at Kessler have decreased in the last year. Most of the occurrences we continue to see are urinary tract infections, while incidence of *Clostridium difficile* has come down dramatically. Bloodstream infections also are rarely seen at Kessler.

Hospital-acquired infection is a potentially modifiable factor that could affect patient recovery and functioning. Vigilance across multiple treatment settings and widespread communication are vital, especially during rehabilitation. The key to holding off infection is making prevention activities and education a routine part of practice.

<sup>1</sup> Scott RD. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. Centers for Disease Control and Prevention. March 2009. Available at: [cdc.gov/hai/pdfs/hai/scott\\_costpaper.pdf](http://cdc.gov/hai/pdfs/hai/scott_costpaper.pdf)



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# The synergy of clinical research and patient care

> BY A.M. BARRETT, M.D.

AT KESSLER INSTITUTE for Rehabilitation and the Kessler Foundation, research and practice are intertwined, occurring in the same environment, on the same topic. This integrated approach seamlessly incorporates science and innovation into patient care. The opportunity to participate in research may empower patients to play an active role in potentially improving their own outcomes and those of others.

But what challenges accompany this combination? How important are the distinctions between research and clinical care?

## Two Perspectives, One Goal

Busy, parallel initiatives at Kessler involving clinical research and practice may provide more integrated services, but can be demanding and complicated. The number of personnel who have roles throughout the process can be large, including hands-on and administrative staff who must be educated about the study protocol; researchers and clinicians who are consulted on the overall study design; and research and clinical staff who are trained on administering interventions.

Research and clinical work operate on two different timelines and perspectives. Clinical interventions focus on patient stabilization and recovery; they emphasize the here-and-now and project a few days to weeks ahead.

Research frequently takes a longer view, with projects stretching over months or years. The research staff members who work with clinicians at the Kessler Institute strive to be cognizant and responsive to their immediate time needs, and accommodate their schedules. Ultimately, the two teams come together over their shared priority: improving knowledge and practice in rehabilitation.

## What's in a Name?

As many clinicians within the Kessler Institute conduct research, it can be difficult to understand at what point one is acting in the capacity as a scientist versus as a provider. This is determined before studies are initiated, through the governance of the Kessler Institute-Kessler Foundation Institutional Review Board (IRB). The Research Review Committee of the IRB ensures that patients participating in a clinical study are clearly aware that the purpose is outside the usual treatment protocol. Additional care may be part of an investigation of new therapy approaches, or participating patients may be asked their personal perspective about

rehabilitation in a study of stroke recovery, traumatic brain injury or spinal cord injury, for example.

Central to research is the idea of building a community of collaborators—comprising the study team, clinicians, patients and other investigators. At Kessler, the research and clinical communities co-exist to help improve lives. Patients appreciate being asked to serve as research subjects, and they enjoy partnering with the team as equals. They value sharing their experience and giving to others, which is so different from their ongoing role as a patient.

Researchers have designated resources and careful accounting for all research activities separate from clinical practice. This distinction helps keep our processes at the highest national standard and allows patients to focus on their recovery. But perhaps in some respects, answering questions about how to keep research and practice separate is not as important as ensuring that research and practice interact. It is through the energy of interaction between science and practice at Kessler that we move in the direction of benefiting those we serve.



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